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# REFRIGERATION NEWS

Registered U. S. Patent Office

ESTABLISHED 1926. MEMBER AUDIT BUREAU OF CIRCULATIONS. MEMBER ASSOCIATED BUSINESS PAPERS.

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## KELVINATOR SELLS 30,116 UNITS IN APRIL

### CARRIER TRAINS DEALERS IN AIR COOLING SELLING

#### Commercial Products Studied in 2-Day Convention

By John T. Schaefer

NEWARK—A more aggressive specialty selling program than the conservative Carrier Engineering Corp. has ever followed was outlined to a group of some 85 recently franchised dealers and distributors of Carrier Products Corp. on Monday and Tuesday of last week.

The occasion was a two-day sales and engineering conference of Carrier Products Corp., newly organized subsidiary by which Carrier commercial refrigeration and air-conditioning equipment is now being sold through dealers and distributors.

First day was devoted largely to commercial refrigeration, while the second day's program concerned air conditioning. Both included sales helps as well as simplified engineering data.

J. M. Bickel, merchandising manager of Carrier Products Corp., opened the conference Monday morning as chairman of the first session. The ensuing program, he declared, will comprise the first dealer conference on air conditioning.

J. I. Lyle, president of Carrier Corp., parent company, made the official welcome.

(Continued on Page 14, Column 1)

### 4 DISPENSERS ADDED BY LIQUID CARBONIC

CHICAGO—Four new beer-cooling and dispensing units have been added to the line of beer-serving equipment manufactured by Liquid Carbonic Corp. here.

Two of the new units, models 265 and 266, are service bars designed especially for use in restaurants, clubs, and hotels, where installation space is limited. They have space for barrel storage beneath the counter surface, and may be used as complete service units or incorporated in a bar layout.

Each of these two models is available for use with ice or electric refrigeration, according to the manufacturer. Also optional is the Zahn counter pressure system of beer cooling and dispensing or the block tin coil attachment for cooling beer and water.

The new units have stainless steel fronts, tops, and drip boards on standard models, and may be secured with this material used as the facing for all surfaces.

Model 265 accommodates one half-barrel, and has one beer faucet and

(Continued on Page 12, Column 2)

### PECK & KILEY APPOINTED TO GRUNOW FIELD STAFF

CHICAGO—Two men have been added to Grunow Corp.'s staff of field representatives, according to H. C. Bonfig, general sales manager of the company. The men are P. W. Peck and George H. Kiley.

Mr. Peck will have charge of sales activities in the southeastern section of the country, and Mr. Kiley will direct selling operations in the Philadelphia and New York City metropolitan area.

Mr. Peck was formerly associated

(Continued on Page 4, Column 4)

### Westinghouse Output In April 4,500

MANSFIELD, Ohio—April production schedule of Westinghouse Electric & Mfg. Co. called for manufacture of 4,500 electric refrigerators, according to officials of that company, who report that unfilled orders now total more than 10,000 units.

### Leonard Will Not Guarantee Prices

DETROIT—R. I. Petrie, general sales manager of the Leonard Refrigerator Co., last week sent a bulletin to distributors of his company, stating that orders placed with the factory will henceforth be accepted with the understanding that they are to be filled only at prices current at the time the company is able to make delivery.

Mr. Petrie pointed out that advance notice of the government's inflationary program has started an upward swing in commodity prices.

In some instances, suppliers are re-

(Continued on Page 4, Column 5)

### SERVEL MAKES TWO COOLERS FOR BEER

EVANSVILLE, Ind.—Two new Servel beer coolers have just been announced by C. A. Miller, sales manager of Servel Sales, Inc. One of the new coolers is a cabinet for chilling bottled beer; the other is a self-contained bar unit for serving draft beer.

The Servel bottle beer cooler is a vertical cabinet, with a capacity of 126 pint bottles. Storage system is of the dry type, eliminating loss of labels and the necessity for wiping bottles.

A Servel "Humidraft" chilling unit

(Continued on Page 12, Column 3)

### REFRIGERATED FOOD NEWS WILL PUBLISH BEER COOLER DETAILS

Specifications of all types of beer-dispensing equipment will be printed in the May issue of Refrigerated Food News, which will soon be off the press.

Detailed information will be given on combination draft and bottle beer dispensing units, service bars, and bottle coolers. Specifications data will include details on dimensions, capacities, type of refrigeration employed, and characteristics of construction.

Publication of the material will mark another step in the Refrigerated Food News plan to offer its readers authentic data on various types of commercial refrigeration equipment. Commercial refrigeration machine specifications were published in the April issue.

### YORK PRODUCES AIR CONDITIONER UNITS FOR HOME

#### Distribution Plans for Commercial Line Are Drafted

YORK, Pa.—York Ice Machinery Corp. has started production on an individual air-conditioning unit and a central system air conditioner for household applications and for use in stores, restaurants, and other places of business, according to William S. Shipley, president.

A substantial portion of the company's plant and working force will be directed to the production of the air-conditioning apparatus, Mr. Shipley stated.

The individual unit is designed to produce comfortable atmospheric conditions throughout the year in one room, and the central system air conditioner for a number of rooms.

The individual unit will occupy about the same space as an average size radiator, and will be "powered" by an electrically operated compressor situated in the basement or other available space. The central system conditioner is located in the basement and is a self-contained unit.

The new York unit air conditioners are being produced in both floor-type and ceiling-type models. Floor-type models have attractive exterior finishes with grilles tops.

York's new line of small refrigerating machines using Freon as the re-

(Continued on Page 12, Column 1)

### WALKER MADE FRIGIDAIRE PUBLIC UTILITY MANAGER

DAYTON—H. J. Walker, Jr., has been appointed manager of Frigidaire Corp.'s public utility sales division, by H. W. Newell, vice president in charge of sales.

For the past eight years, Mr. Walker has served Frigidaire Corp. in various capacities. He started as an apartment house salesman, became a supervisor, and then sales manager in Detroit.

Promoted to manager of the Dayton branch, he later was branch manager in Springfield, Mass.; New Haven, Conn.; and Detroit. More recently he has been manager of the east central region of the United States.

### 2 Air-Conditioning Units Designed By G. E.

SCHENECTADY, N. Y.—General Electric Co. is introducing as new products in its air-conditioning line two types of units for installation in homes, offices, clubs, apartments, etc.

One is an air conditioner, with a self-contained condensing unit, designed with radiation systems.

This unit, which may be installed in place of the ordinary radiator, heats and humidifies in the winter, cools and dehumidifies in the summer, and ventilates, circulates, and cleans the air and silences noise the year 'round.

Second is a portable air conditioner

(Continued on Page 12, Column 3)

### AMERICAN BLOWER TO CONDITION HOMES

DETROIT—A complete air-conditioning system for homes, which uses ice-cooled, electrically refrigerated, or city tap water for summer cooling, is being announced this week by American Blower Corp. here. The system is being made in four sizes.

Two years of experimental work and a summer of tests made in homes in various parts of the country preceded

(Continued on Page 12, Column 2)

### WM. ROBT. WILSON HAS NOT RELINQUISHED CONTROL OF COPELAND CO.

John W. Eckelberry  
3102 Union Guardian Bldg., Detroit  
May 2, 1933.

ELECTRIC REFRIGERATION NEWS,  
Detroit, Mich.  
Gentlemen:

As I informed your Mr. F. M. Cockrell over the telephone on April 26, I am attorney for Mr. Wm. Robt. Wilson.

I have read "ELECTRIC REFRIGERATION NEWS" for April 26, 1933, as well as several previous numbers of that periodical, and find that there are certain statements made therein which, directly or indirectly or by innuendo, are either not in accord with the facts, or are misleading or unfair to and derogatory of Mr. Wilson.

Without attempting at this time to particularize all the objectionable statements, I do direct your attention to the following:

1—Any and all statements therein which directly or indirectly or by in-

(Continued on Page 4, Column 3)

### SHIPMENTS SET RECORD; ORDERS ON HAND LARGE

#### Kelvinator to Increase May Production Over May, 1932

DETROIT, May 2. — Kelvinator Corp., with the shipment of 30,116 units in April, today reported the biggest month in the 19 years of the company's history. The all-time record for a single month had previously been held by April, 1932, when 25,427 units were shipped.

"We have on hand today unfilled orders representing 217 per cent of those on hand May 1, 1932, and 323 per cent of those on file a month ago," states G. W. Mason, president. "This is the biggest bank of unshipped business that has ever accumulated on our books."

"As a corporation, we have always been hesitant about making predictions," Mr. Mason continued, "but our program for May is now an established certainty. The May production schedule, even after all allowances have been made in the interests of conservatism, calls for an increase of 40 per cent above the shipments of May, 1932, which was the biggest May in our previous history."

"Unit shipments for the current fiscal year are already ahead of last year. Our May schedule will increase this lead."

### 2 G. E. DEPARTMENTS MOVE TO NELA PARK

CLEVELAND—Specialty appliance sales department and electric refrigeration department of General Electric Co. have doubled their floor space by moving from the Hanna building in downtown Cleveland to Nela Park, East Cleveland, Ohio.

The two departments have taken over the entire appliance building at Nela Park, as well as the second floor of the treasury building. The move was made on the traditional moving day, May 1.

In addition to these two departments, the General Electric Kitchen Institute will be located at Nela Park.

Out of town visitors arriving in Cleveland from the East should get off New York Central and Nickel Plate trains at the East Cleveland station, while those arriving on the Pennsylvania should leave their trains at Pennsylvania 55th-Euclid station.

The new telephone number will be Liberty 9000.

### MAJESTIC OPENS FACTORY OWNED DISTRIBUTORSHIP

DETROIT—One hundred twenty-five Majestic refrigerator and radio dealers from upstate Michigan met in the ballroom of the Book-Cadillac hotel here on April 27 to hear spring selling plans discussed by officials of Detroit's new factory-operated distributing outlet, Michigan Majestic, Inc.

A. A. Trostler, assistant to Grigsby-

(Continued on Page 4, Column 1)

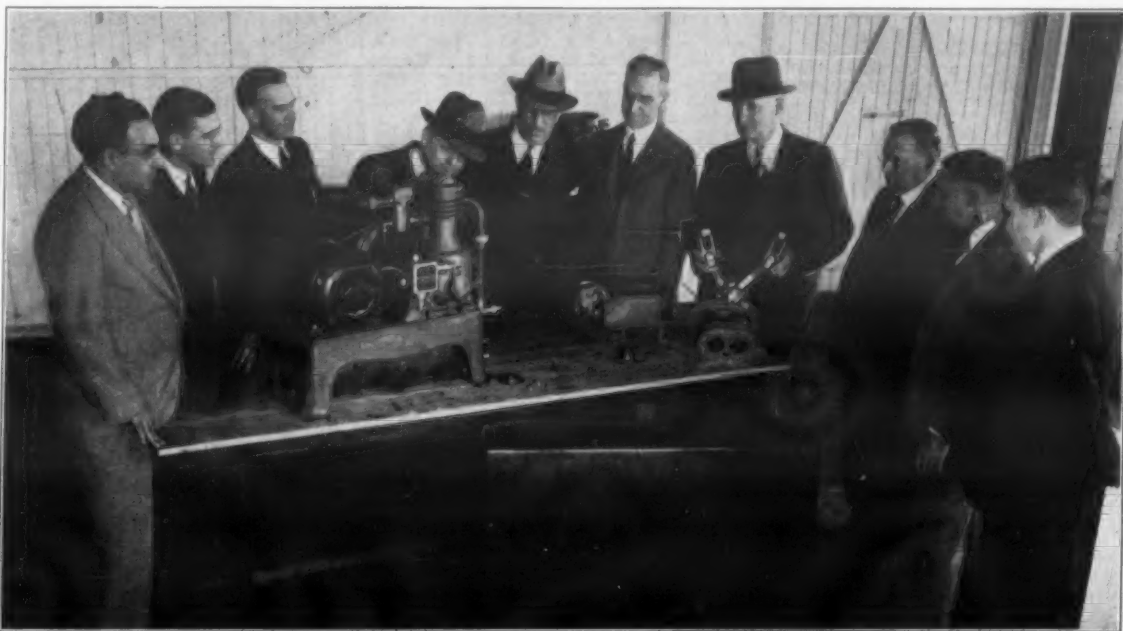
### General Electric Holds Conditioning School

SCHENECTADY, N. Y.—District engineering and sales representatives of the air-conditioning department of the General Electric Co. met at the factory here last week for a school of instruction on new developments in the company's air-conditioning work.

Primary purpose of the school was to acquaint the district representatives with the company's new air-conditioning products, samples of which were on exhibition during the school.

Air-conditioning engineers acted as instructors, and their talks were supplemented by lantern slide views presenting in graphic form details of the new equipment.

### Inspect New York Product



Executives of the York Ice Machinery Corp. who are directing the activities of the company's new commercial division, inspect the new air conditioner. From left to right: I. C. Baker, manager of air-conditioning division; J. L. Rosenmiller, manager sales promotion division; C. A. Pearson, manager commercial division; S. E. Lauer, general sales manager; W. S. Shipley, president; E. A. Kleinschmidt, treasurer; L. Williams, engineer-in-chief; C. W. Vogel, plant superintendent; W. E. Zieber, director of field research; and B. S. Williams, assistant manager air-conditioning division. Announcement of the conditioner is made in column 3 above.



## BY GEORGE F. TAUBENECK ---

### Tony Wildman

We always like to see TONY WILDMAN of International Nickel come around—for a number of reasons. One is that he always has something for us.

This time he brought some knock-out pictures of Monel Metal bars installed in various interesting places, ranging from Agua Caliente to the S. S. Bremen. We'll probably show them to you real soon.

Most of the week-end we spent with this keen-minded young man, and we came out of it with the definite impression that the tottering old economic structure may right itself after all.

For the first time since early 1930 Tony is bullish. And so many of his darkly bearish predictions have come true in the past that we're beginning to get superstitious about him.

If he thinks we're on the upgrade, and he does, this disciple will be willing to bet the 30 per cent of his savings Detroit banks promise to give him this year that Tony is right.

### Trade-Ins

J. H. BENSON of the refrigeration engineering department of Mullins Evaporator Corp. in Salem, Ohio, last week sent us a new slant on trade-ins in the form of a small advertisement published by the Citizens Ice & Coal Co. in a Salem newspaper. Here it is:

"Special offer—\$10 for your old chemical mechanical refrigerator. No matter how worn-out, broken-down, utterly useless your chemical-mechanical, 'electric' refrigerator may be, we will allow you \$10 for it on a new 1933 ice refrigerator.

"We want you to know how economically and well modern ice refrigeration will care for your foods and provide lots of ice."

### Ten Best Words

Remember when everybody was deciding which ten books would most console them if and when they should be cast upon the convenient desert island?

This ten-best idea has penetrated elsewhere since then, taking such forms as the ten best moving pictures of the year, the ten most gorgeous peroxides in Hollywood, the ten most beautiful words in the English language, etc.

Along this line, we ran across the following in a back issue of *Advertising Age*:

"To the Editor: I have chosen to set down a list of ten words which seemed to me most useful to a copywriter. One or two here in the office have collaborated with me on this list.

"The list would seem to me quite representative of Calkins and Holden as many of our accounts are of the craftsmanship type. However, I hold no brief for these words as they are only ten out of a much larger list—all very useful in this office.

"Here is the list: excellence, distinctive, achievement, leadership, outstanding, exceptional, individual, craftsmanship, character, confidence.

C. E. NELSON,  
Vice president, Calkins & Holden,  
New York."

To an editor who spends much of his time struggling to turn back the invasion of puffed-up publicity which comes to his desk, this list seemed like a selection of the Ten Ugliest Words.

And we were reminded of what C. A. Miller, sales manager of Servel Sales, Inc., calls words of that description: "superfluous."

Which gave us the idea of thumbing through recent copies of *ELECTRIC REFRIGERATION NEWS* to find the most common superfluous words in advertisements for the electric refrigeration industry.

They are more than ten, but the prize ones seem to be: Quality, value, extra, exclusive, performance, acceptance, convenience, economy, proved and proven ("proven," by the by, is eschewed by Emily Post, Vassar college, and the editor's secretary who makes this notation), experience, developments, outstanding, achievement, amazing, silent, superiority, super, revolutionary, dependability, good-will, new, standard, special, beauty, simplicity, efficiency, trouble-free, permanent, scientific, improvements, reliability, advanced, complete, and many and frequent "un" words, such as unparalleled, unquestioned, unequalled, etc.

Certain super-super phrases of praise are worth noting also, for example: Revolutionary development, accumulated good-will of generations, finest in the industry, unquestioned stability, years ahead of the industry, accepted

standard, special exclusive designed models, matchless beauty, outstanding achievement, engineering masterpiece, greatest value of the decade, greatest name in refrigeration, greatest and surest opportunity in the entire field.

But the big shiny red apple goes to the ecstatic advertising man who thought of this one:

"A thumping big, value-smashing, pace-setting model."

Mebbe we're all wrong about this, but from all we can gather, extravagant words of this category have about as much effect on today's skeptic

### A Business Venture

Since the train bearing two dozen movie stars and a General Electric kitchen crossed the continent last month, advertising G. E. appliances and Warner Brothers' talkie, "Forty-Second Street," Walter Daily, advertising and sales promotion manager of G. E.'s specialty appliance department, has compiled some figures showing just what the project accomplished in bringing the G. E. kitchen to the attention of the public.

His figures show that approximately 2,000,000 people were spectators of parades staged in 14 major cities of

### Greetings from Barbara Ann



Takes after her daddy, does Barbara Ann Hadley, daughter of Earl Hadley, advertising manager, Grigsby-Grunow Co.—because she likes to write, too.

tical public as gusts of wind blowing on the Empire State building.

As Walter Daily proved so admirably to the Detroit Adcrafters some time ago, reason-why copy—the detailed, down-to-cases, factual kind of copy—is most effective today. General praise is discounted heavily by readers.

That being the case, no list of ten words should be useful to an advertising copy writer. His vocabulary should be much larger, for it should contain the exact word—the inevitable word—to describe the saleable features of every article the copy writer is promoting.

We shall now rise and sing hymn No. 28 in the red book.

### All-Electric Kitchens

Every man in the General Electric organization who reads this kolum will undoubtedly remember vividly the beautiful modernistic setting for the General Electric kitchen which was put together on the stage of each G. E. distributor-dealer meeting everywhere in the nation this year.

It was a thing of beauty, and a thing to covet. Moreover, it could be slapped together in a few minutes, and appeared as if it were built for the ages.

In Chicago last week, we found, almost by accident, the shop where this kitchen was turned out. There you'll find half a dozen or more different all-electric kitchens set up, and backgrounds for others in the process of manufacture.

It is the Moderne Decorative Service, and it operates in the Albany Cabinet Works at 738 N. Albany St., Chicago. K. S. LOPINA, who was formerly on the stage and who has a flair for distinctive showmanship, is the designer, with R. E. REDDEL for his right-hand man.

In addition to General Electric and Westinghouse all-electric kitchens, we found there all sorts of combinations of ranges, dishwashers, and refrigerators (including Frigidaire, Norge, Majestic, and Grunow). Most of these combinations included Monel Metal sinks.

H. D. TIETZ, representing the household division of the International Nickel Co., is very much on the job there, promoting the idea.

the country.

An additional 500,000 persons saw the train as it made stops and station broadcasts. A similar number of people went through the G. E. kitchen car and inspected the G. E. refrigerator, range, dishwasher, and other kitchen appliances.

From one to five radio broadcasts were made in each of the 14 principal cities on the train's schedule. Distributors and dealers of G. E. products were identified when they acted as hosts to the train's party in their own communities.

In Los Angeles, 50,000 persons saw the parades, and 10,000 went through the kitchen car. Seventy-five thousand Denverites saw the parades, and 18,000 inspected the kitchen. Some 200,000 persons in Kansas City saw the parade, and 58,000 looked at the all-electric cuisine.

St. Louisans turned out 125,000 strong for a look at the parades there, and 36,000 people went through the kitchen. In Indianapolis, 200,000 people watched the parades, and the kitchen drew 63,000 curious persons. Forty-two thousand Chicagoans visited the kitchen car and 250,000 attended the parades.

At Toledo, the parades drew 35,000 spectators, and the kitchen car attracted 14,000. Forty-five thousand people witnessed the parades in Cleveland, and 6,000 passed through the kitchen car. While 300,000 persons watched the parades in Pittsburgh, 46,000 inspected the G. E. kitchen.

In Washington, 20,000 saw the parades, 3,200 the kitchen. Two hundred thousand persons stood in the rain to watch the parades in Philadelphia, and 8,500 visited the kitchen car. In Baltimore, 45,000 people saw the parades, and 3,100 went through the kitchen.

While it rained in Boston, 75,000 people came to see the parades, and 5,600 inspected the kitchen. And in New York, 150,000 witnessed the parade, and 35,000 looked at the kitchen equipment.

Station receptions were given the train at a number of smaller cities. Towns where these affairs were held, and estimated attendance, are given by Mr. Daily as follows:

Pasadena, 10,000; San Bernardino, 6,000; Albuquerque, 30,000; Pueblo, 10,000; Colorado Springs, 12,000; Youngstown, 10,000; Buffalo, 7,000; Providence, 20,000; New Haven, 10,000; Lawrence, 8,000; Akron, 8,000; Gallup, N. M., 8,000; La Junta, Colo., 12,000; and Bridgeport, 5,000.

Mr. Daily's figures show that 5,000 turned out to greet the train at Flagstaff, Ariz.; 2,000 at Needles, Calif.; 2,500 at Winslow, Ariz.; 6,000 at Dodge City, Kan.; 2,500 at Newton, Kan.;

2,500 each at Hutchison and Emporia, Kan.

Correspondingly larger crowds saw the train's arrival at Topeka; Crown Point, Ind.; Montpelier, Ind.; New Rochelle and Darien, Conn.; Newark; La Mar, Colo.; Garden City, Kan.; Jefferson City, Mo.; Ashford and Williams, Ariz.; Lamy, Los Vegas, and Raton, N. M.; Trinidad, Colo.; Syracuse, Kan.; and Herman and Washington, Mo.

All of which should indicate that the trip was a highly successful business venture.

### Sleeves Rolled Up

Stenographers at Grunow Corp.'s factory in Chicago were busy last week sending to dealers all over the country a mailing piece which carries a right-to-the-jaw personal message from Bill Grunow. It does everything but hammer on the table. Highly amusing, too. Because it presents serious subjects in the new humorous vein made fashionable by President Roosevelt, we'd like to tell you about it.

The piece is a four-page folder, with each page the size of those in a metropolitan newspaper. Under a four-line scare head on page 1 appears Mr. Grunow's here's-how-I-stand talk to prospective dealers.

The headline reads: "My sleeves are rolled up and I'm ready for some action. How about yours, gentlemen? Let's get on our feet and go places!"

Parts of his talk to dealers follow:

"Countless times I have said in the past and I say it again today—I do not believe in tipping my entire hand all at once; I do not do things by halves; I love a fight. I think the time has arrived right now to pull out the aces in the deck (or at least a couple of them). I intend to finish what we started. I realize perfectly we are in the fight of our lives—and I still love it . . .

"The big guns have been turned on us for several weeks now, but the marksmanship is poor. They haven't even found the target yet. And they won't. Because the product is absolutely bullet-proof, and they know it.

"They have even sicked the Better Business Bureau on us, and we like that too. You've got to be hot to get those boys after you. As a matter of fact, we stand ready to prove every statement we have made about our product.

" . . . I believe the time is ripe for action and I am going to give it to you. They say that we need national advertising. Well, I have instructed our advertising department to prepare immediately for running as quickly as possible advertisements in the *Saturday Evening Post*, *Collier's*, and *Good Housekeeping*.

"We hit them first with a double-spread in the *Saturday Evening Post* on May the 6th—the quickest date we can make it. We are going to get up a wonderful portfolio of national advertising for your salesmen.

"We are going to give you help with local newspaper advertising. The details will follow from our advertising department in a day or so. The main thing is—we are going to move and move fast."

On page 2 of the piece is a "tricks of magic" message presented with apologies to Camel cigarettes. It was a dandy, and again proves how clever Duane Wanamaker can be. In the center of the page is a scantily clad slave girl holding a tray upon which is an electric refrigerator tagged with a large \$89.50 price mark. Whipping away from the tray a silken sheet is a mustachioed man of magic, with rolled sleeves, turban, and all.

The accompanying copy says this:

"Let's be sure we're not suffering from any 'illusions.' It's fun to be fooled but it's more fun to know."

"Illusion: A slave girl walks onto the stage holding a large tray on which is placed a toy refrigerator bearing a price tag marked \$89.50 in large figures. The magician covers it from view of the audience, for a moment, with his magic cloth.

"He then pronounces the magic words, 'Shouldbecold, B.C., 1933—the goblins will get you if you don't watch out.' He removes the cloth and, lo and behold the refrigerator has assumed the size and looks of a genuine \$300 model.

"Explanation: To accomplish this apparently impossible trick the magician relies on two things: First, the jittery, nervous condition of his audience; and second, a small metal or decalcomania name plate.

"He has practiced this trick for years, before refrigeration audiences. By experience he has learned that showing the right kind of price tag causes any box, even if it is made of cardboard, to appear twice as large and 10 times as glamorous.

"By doing this and at the same time pronouncing the magic words, 'Omigod just look what's happened,' his audience will be taken with such an agree that he can show them a white rabbit and tell them it is a Siamese elephant.

"To heighten the illusion, all that is necessary is to place a familiar name plate on the tin, cardboard, or what-

ever kind of box he is using. This throws the audience into a complete jitter and makes them go out calling themselves names."

Below this picture is some more let's-talk-business copy for dealers. Here are some parts of it:

"Are we in the refrigeration business or are we getting it all tangled up with running a Wiggly-Wiggly Store, where all butter is yellow and sells by the pound; and only a dairy expert and the cows can tell the difference?"

"Let's not confuse the refrigeration business with the soap business, where 10 cents worth of cologne, thrown into a vat, will give any soap a 'genuine French odor.' All automobiles have four wheels and an engine, and all automobiles look like an automobile.

"But, not even the dumbest customer would attempt to compare a Packard with a Ford; and any customer who could buy a Packard for 30 or even 40 per cent more than a Ford, would hardly hesitate a minute in making such a buy.

"Isn't it a fact that it is not the attitude of the customer but of ourselves that is holding us back in this business? Nine out of ten customers want the best of whatever they start out to buy. It is only their pocketbook that keeps them from getting it.

"The desire is there—that we know. With an electrical refrigerator, over 90 per cent of sales are made on instalments, and any customer who is handled with the right sort of salesmanship, and who is convinced that he is getting the very best for three or four dollars more per month than the price he would pay for absolute junk, will buy the best.

"If John Smith or Bill Jones want to bring out a refrigerator (probably worth \$69.50) for \$89.50, let them. If Joe Dokes Co. want to cut the price of their \$300 refrigerator to \$260, let them—it's still too high.

"And getting in a lather and turning 14 complete cart wheels won't stop them. There always has been, always are, and always will be Joe Dokes and Bill Jones; and you know what happens to people who try to 'keep up with the Jones.' Let's quit worrying about them and do a little thinking about our own proposition."

On the following page is a talk on "keeping up with the times." At the top of the page is a view of a museum, showing a snappy bustled dress for ladies of 1900, another dress of indescribable design which was hot stuff in 1927, a 1910 automobile, a sewing machine with plenty of fancy iron work, a colicky bathtub, a flowered Sunday-parlor lamp of 1854, and a weird looking radio of several years back.

Beneath this picture appears the caption: "Many of yesterday's best sellers have become curios in a museum," and the text following elaborates on the subject.

Last page of the folder illustrates various advertising pieces and layouts being used by Grunow Corp. At the bottom of each of the folder's pages appears the slogan, "It's time America knew what's inside an electric refrigerator."

To which we'd like to add: "It's time American advertisers washed the lugubriousness off their long faces and began to smile—with Roosevelt—again." And how's that for a slogan: "Smile with Roosevelt!"

### Poor Papa

The following letter brightened up an advertisement for the Hotel Rowe in Grand Rapids, which we ran across in a recent issue of the *Greenview Daily News*.

The Letter of a Modern Father

"My Dear Daughter:

"You ask me if your husband should stay on in his present position at an 'adjusted' salary, but you forgot to tell me what he would do if he didn't. You and he couldn't very well come here just now. Your brother, Sheridan's, salary has just been reconsidered; so he moved into his old room at home and brought his wife.

"Your sister, Eloise, telegraphed the next day that Wilfred had just been offered a new contract that was an insult; so your mother is airing out her room. Wilfred never could endure insults.

"Your sister, Frances, who, you will recall, has been private secretary, wrote last week that if anyone thinks she is going to drop to the level of a common typist that they are mistaken, so we expect her any day.

"What with them and the younger children, I imagine that as long as Rupert's salary is merely being 'adjusted' he had better stay. An adjustment is nothing like a reduction. It is hard for me to keep up with the language of big business, but as I understand it, an 'adjustment' is the equivalent of a raise. Of course, Rupert wouldn't know that; he has been working only since 1931; he should ask some old timer to explain what a raise is.

"My own business is coming along fine. It was sold on the courthouse steps last Friday, but there were no bidders, so the sheriff let me keep it. That makes the best month I've had since the upturn.

"Your affectionate father."

GIFT OF PUBLISHER



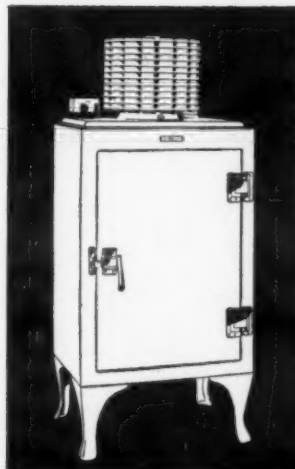
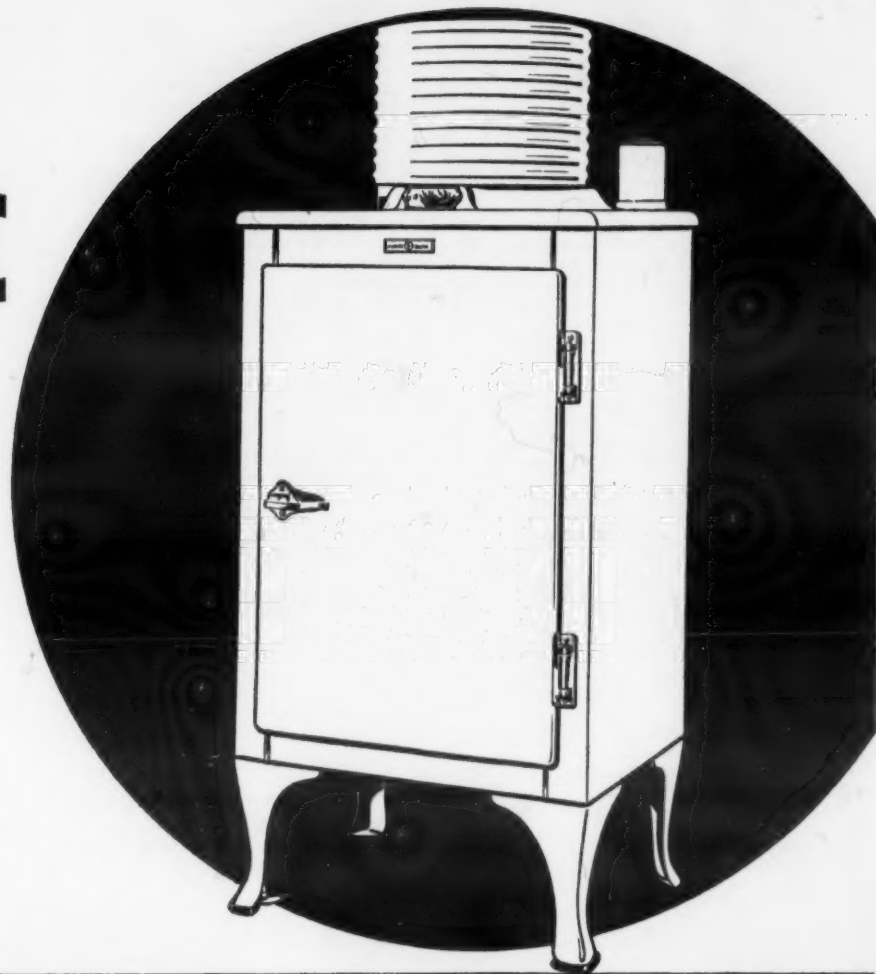
# A CHAIN OF PROFITS

*starts with the sale of a*

## GENERAL ELECTRIC REFRIGERATOR

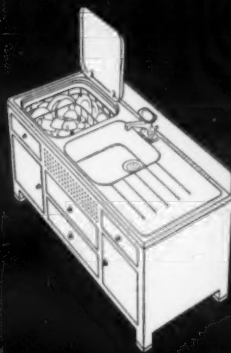
The G-E retailer not only makes a profit on the sale of a refrigerator but gains through every G-E purchaser a preferred prospect for the sale of a G-E range, a G-E dishwasher—and eventually a complete General Electric Kitchen! Each sale is a link in a chain of *continued* profits.

● General Electric provides a dealer plan of every type—from the highly specialized complete organization to the small unit display operated in connection with other business. Whether it's a one unit outlet or an operation dealing in carloads—there's a General Electric plan for every refrigerator retailer.



**THE G-E MONITOR TOP REFRIGERATOR** enjoys three times the public preference of any other make. It provides the world's lowest cost refrigeration. Built to last a lifetime, the Monitor Top mechanism alone among leading makes is guaranteed 4 years.

**THE GENERAL ELECTRIC RANGE** is the only range completely equipped with the famous high-speed Calrod G-E heating unit that makes electric cookery faster and far more economical. General Electric Range prices as low as \$115.90 at the factory.



**THE G-E ELECTRIC DISHWASHER** washes and dries all the dishes for a penny a day... does it in 5 minutes... and many times cleaner than possible by hand. A size and model for every requirement. There are more than 100,000 electric dishwashers in use today.



**GENERAL ELECTRIC KITCHEN**

**R**EFRIGERATOR prospects are shopping, comparing and *buying* General Electrics. G-E factory shipments right now are at the rate of **A TRAINLOAD A DAY**. With new beauty, new styling, new features and new low prices, G-E's 1933 line of refrigerators offers greater dollar values than ever before.

The new 10★ G-E freezes more ice faster, uses less current, and has *ten* star features. All-steel cabinet is porcelain inside and out, with stainless-steel

freezing chamber, adjustable sliding shelves, automatic interior lighting, foot-pedal door opener, semi-automatic defrosting and temperature control, and is completely equipped with chiller tray, vegetable pan and food containers.



### IT'S NEWS

when General Electric offers a refrigerator priced as low as

**\$99<sup>50</sup>**  
plus tax and delivery

The General Electric Monitor Top Refrigerator is the **ONLY** refrigerator that has a **4-Year Guarantee** on the mechanism. It is universally recognized as the standard of excellence. One out of every three homes using modern refrigeration today has a General Electric Monitor Top.

In addition to the famous Monitor Top line, General Electric also offers new G-E flat-top models—a popular-priced refrigerator line with all the traditional quality of General Electric products. Features and quality never before available at the price, set new standards in low-priced refrigerators. The *full-powered* mechanism operates approximately only one-third of the time to maintain adequate refrigeration—giving reserve capacity for any unusual demand. It uses *less* current per 24 hours than a 60 watt electric bulb burning the same length of time. General Electric Company, Specialty Appliance Sales Department, Section DF51, Nela Park, Cleveland, Ohio.

**GENERAL ELECTRIC**  
ALL-STEEL REFRIGERATOR



## FACTORY BRANCH IS OPENED BY MAJESTIC

(Concluded from Page 1, Column 5)

Grunow Co.'s General Sales Manager John Ditzell, was in charge of the meeting, and announced that he will direct operations of the branch at least until its activities are underway.

Establishment of the new distributing organization was occasioned by withdrawal from business of the Detroit Majestic Products Co. on April 1, when the former Majestic distributor's directors voted to discontinue operations.

The newly organized outlet will have its headquarters at 101 East Jefferson Ave. here, and will supply dealers in the Detroit area and in territories extending as far west as Jackson, Mich., and as far north as Bay City, Mich., according to Mr. Trostler.

Assisting in management of Michigan Majestic, Inc., will be W. S. Michael of the Grigsby-Grunow Co. Personnel comprising the field organization of the former Majestic distributorship will be retained by the new operators, Mr. Trostler says.

After explaining details of the new distribution setup to the dealers, Mr. Trostler presented new items of the 1933 Majestic radio line, pointed out their sales possibilities, and announced that Grigsby-Grunow is bringing out other new radio models in the near future.

He also described Grigsby-Grunow's national advertising campaign, window displays, and promotional pieces, and then introduced Tom Maginniss from the factory in Chicago who pointed out features and explained operation of each model in the Majestic refrigerator line, and gave refrigerator sales suggestions.

After the meeting, the dealers were guests of the distributorship at a dinner in the Book-Cadillac hotel.

## Service Men Form Credit Body

DETROIT—To protect their companies from losses incurred through extension of credit for refrigeration service work to poor risks, 20 officials of local manufacturing, sales, and service organizations and independent service companies have formed the Electric Refrigeration Sales and Service Credit Association.

The association was organized at a meeting held April 24 in the Webster Hall hotel here. It is expected that 40 officials of local companies will be members of the organization in the near future, according to its president, L. R. Richards, who is also president of the Nome Refrigerator Co.

Each month, members of the new association will file with the Detroit Credit Bureau the names of all persons or companies who have failed to make satisfactory settlement for household or commercial refrigeration service work done by one of the member companies.

A bulletin containing these facts will be issued monthly by the credit bureau to all association members, and the latter will then be in a position to know what the credit record of these persons and companies is before supplying service to them, Mr. Richards explains.

When a refrigerator user calls a member company for service, the company will probably refuse to do the work except on a c.o.d. basis if the user's name is reported on the bulletin for non-payment to another association member.

Officers of the new organization are Mr. Richards, president; W. Kline of Zerozone Sales & Sales, vice president; R. D. Bielby, credit manager at the local Frigidaire factory branch, director; C. L. Elliott, credit manager at Universal Cooler Corp., director; and

## A New Model



Ruth Tomberg enhances the beauty of Majestic's new 8.2-cu. ft., all-porcelain model 950 which was described in the April 26 issue.

F. W. Hamilton of the Detroit Credit Bureau, secretary-treasurer.

Until June 1, the association's membership fee will be \$30, according to Mr. Hamilton. After that time, the fee will be \$40, he states. The association will hold monthly meetings.

## WM. ROBT. WILSON WILL NOT RELINQUISH CONTROL OF COPELAND

(Concluded from Page 1, Column 4)

nuendo state or infer that Mr. Wilson is no longer president of Copeland Products, Inc., with all the powers and prerogatives of said office, are not in accord with the facts.

2—Any and all statements therein which directly or indirectly or by innuendo state or infer that Mr. Wilson is the real and only party in interest "behind the movement to force the company into receivership this week" are not in accord with the facts.

3—Any and all statements therein which directly or indirectly or by innuendo (by stating, for example, that he "is waging a strong battle to retain control"), state or infer that he is the real and only party in interest seeking to rid the company from the incubus of the creditors' committee, so-called, are not in accord with the facts.

In view of the foregoing, and having in mind your expressed desire to be correct and fair in all your statements, I request, in behalf of Mr. Wilson, that all such statements, which, to say the least, are misleading, be retracted as soon as possible, and not later than your issue of "ELECTRIC REFRIGERATION NEWS" for May 3, 1933. To be entirely fair to Mr. Wilson I would suggest that the retraction be given similar prominence as the publicity of the objectionable statements aforementioned, both with respect to position and space.

Mr. Wilson is still chairman of the board of directors and president of Copeland Products, Inc., and has, at all times, had, and will continue to have at heart, the best interests of that company, its distributors, dealers, customers, organization, directors, stockholders, and creditors, and any person or persons who at any time make or publish any statements which, directly, indirectly or by innuendo impute to him, any contrary interests will be held accountable. In line with your expressed desire to cooperate in this matter may I ask that you send to me before publication, the statement by which you propose to refute any misunderstandings.

JOHN W. ECKELBERRY.

## American DryIce Takes Over DryIce Corp.

NEW YORK CITY—The American DryIce Corp., on April 19, took over the business of DryIce Corp. of America, according to an announcement made from the executive offices of the new solid carbon dioxide distributing firm at 205 E. 42nd St. here.

American DryIce Corp. will continue to maintain warehouses in all of the principal cities throughout the country east of the Rocky Mountains where its predecessor had done business.

## Peck, Kiley Join Field Staff of Grunow

(Concluded from Page 1, Column 1)

with Grigsby-Grunow Co., and came to Grunow from Gibson Electric Refrigerator Corp.

Other new field representative, Mr. Kiley, resigned from his position as an official in the Schaffhauser-Kiley Corp. of Philadelphia to join Grunow.

## DAN WILLIS LEADS G. E. 'MAN HUNTERS'

CLEVELAND, May 1, (Special Wire to ELECTRIC REFRIGERATION NEWS)—Greatest General Electric refrigerator sales activity since 1929 was in progress today as "Man Hunters" of Refrigerania continued such a drive that trainload after trainload of refrigerators, ranges, and dishwashers are being rushed to the field to meet the demand.

In the central district, Dan Willis, head of Electrical Housekeeping, Inc., of Cleveland, set a new high mark in the Man Hunt which placed him in the commissioner's job in the district.

M. E. Brown, former commissioner, who has been hard pressed by Willis for the past two weeks, finally slipped back into second place, 9 per cent behind Willis.

Deputy Commissioner Turner Barger holds third place with only 2 per cent to go to reach Brown.

### McCrea's Lead Threatened

Although C. L. McCrea still holds the commissioner's title in the Atlantic district, Deputy Commissioner Bill Driscoll in Charlotte, N. C., is but 1 per cent behind Mr. McCrea.

The police force of D. F. Hines in Baltimore is in third position.

In the metropolitan district, W. L. Thompson of Boston last week became commissioner by a fraction of a per cent. This week, his men put him in the lead by 1 per cent.

Don Breckenridge's force has put this distributor in second place, and A. Wayne Merriam, who led the first two weeks of the Man Hunt, is now in third place.

E. Pulver Cook, deputy commissioner of Rhode Island, is pressing Merriam hard for third honors.

In the southwestern district, E. B. Edmundson still retains the commissioner's title and is still leading the nation in percentage of quota realization.

With the campaign less than half over, this distributor has made 60 per cent of quota.

### Ahrens Takes Third Place

Deputy Commissioner Albert Ahrens, who led early in the Man Hunt, has slipped into third place and H. A. Pendergraph is second.

In the Rocky Mountain district, B. K. Sweeney is now in possession of the title of commissioner, with A. J. Finck and E. O. Cone, erstwhile leaders, in second and third places.

Midwestern District Commissioner M. A. Glueck of Kansas City still holds the title of commissioner in the midwestern district, although Deputy Commissioner R. Cooper, Jr., and O. F. Stuefer, each of whom have held the title, are now only 2 and 4 per cent respectively behind the leader.

## FRIGIDAIRE SALES GAIN IN BALTIMORE TERRITORY

BALTIMORE, May 1.—Special Wire to ELECTRIC REFRIGERATION NEWS)—Large increases in household refrigerator sales in the Baltimore-Washington district of Frigidaire Sales Corp. were reported today with the totaling of April business.

Hochschild-Kohn Co., Baltimore department store, has since Jan. 1 done a refrigerator business which is 230 per cent greater in dollar volume than that done during the same period last year.

This store, which handles Frigidaire exclusively, has 14 refrigerator salesmen working under the direction of Irving Hall, buyer.

The Baltimore retail store operated by Frigidaire Sales Corp. reports an increase of approximately 20 per cent in household business.

Dealers throughout the district are doing a good business, according to R. C. Griffith, dealer sales manager for the district.

Approximately 20 per cent of their recent sales have been made for cash, and of their paper sales, 90 per cent of the down payments have totaled 10 per cent or larger, Mr. Griffith said. The Frigidaire retail store closed 22 sales on April 28.

Washington dealers report large turnouts and large cash payments. George's Radio, a chain of three stores in Washington, last week took on Frigidaire exclusively with Philco radio.

## Prices Not Guaranteed By Leonard

(Concluded from Page 1, Column 2)

fusing to commit themselves on material prices for future delivery, while in others, certain raw materials are proving difficult to obtain, he said.

In April, Mr. Petrie announced, orders reached the factory in such numbers that they exceeded all previous records, with the result that unfilled orders are the greatest in the company's history.

Both the Detroit and Grand Rapids plants are working 24 hours a day on a full-week basis, with employment figures the highest since 1929, he said.

**HERE'S THE SALES CLINCHER YOU'VE BEEN LOOKING FOR!**

**The SHELVADOR**  
U. S. PATENT 1898922

**An exclusive patented feature of the New CROSLEY Electric REFRIGERATOR**

The Shelvador doesn't need explaining. One glance and the story is told. What a show-room and show-window feature!

With the Shelvador you're a mile ahead of competition. You have something every housewife wants in her new electric refrigerator or is sorry she hasn't in her present one.

### Increases "Usable" Capacity 50%

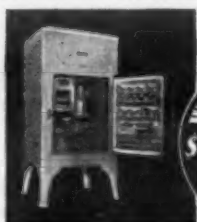
Shelvador actually makes the "small" refrigerator "larger" by increasing the "usable" space. It saves the annoyance of "feeling around" for small, hard-to-find objects . . . puts them where they are easily reached.

### Only Crosley Offers It

And remember—only the Crosley Electric Refrigerator can use the Shelvador; for it is an exclusive, patented Crosley feature. Insulation is not sacrificed in the Shelvador—the exterior of the door is extended to permit the use of a standard thickness of insulation.

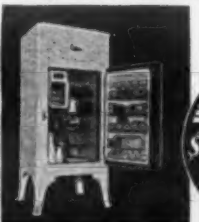
In addition to the Shelvador, the Crosley Electric Refrigerator—famous last year for its trouble-free, service-free operation, has been refined in several points to make it even better. See your nearest Crosley distributor or write direct to factory.

**MODEL D-35** NET contents—3½ cubic feet. Shelf area—8 square feet. Overall Dimensions: Height, 50½"; Width, 23½"; Depth, 24"; Leg Height, 10½". No. ice trays, 2; No. ice cubes, 42.



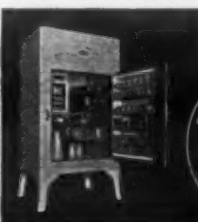
**WITH SHELVADOR**  
**\$89.50**

**MODEL D-45** NET contents—4½ cubic feet. Shelf area—10.5 square feet. Overall Dimensions: Height, 56½"; Width, 23½"; Depth, 24"; Leg Height, 10½". No. ice trays, 3; No. ice cubes, 63.



**WITH SHELVADOR**  
**\$99.50**

**MODEL D-60** NET contents—6 cubic feet. Shelf area—11.5 square feet. Overall Dimensions: Height, 57½"; Width, 29½"; Depth, 25½"; Leg Height, 10½". No. ice trays, 3; No. ice cubes, 63.



**WITH SHELVADOR**  
**\$130**

**ALL PRICES INCLUDE DELIVERY..INSTALLATION..ONE YEAR FREE SERVICE**

Montana, Wyoming, Colorado, New Mexico and west, prices slightly higher.

**The Crosley Radio Corporation - Cincinnati**  
POWELL CROSLEY, Jr., President. The Home of "The Nation's Station"—WLW

**CROSLEY Electric REFRIGERATOR WITH SHELVADOR**  
U. S. PATENT 1898922



# THE New Frigidaires

## ARE IN TUNE WITH THE TIMES

FRIGIDAIRE'S NEW STANDARDS OF BEAUTY...ECONOMY...  
CONVENIENCE...QUALITY...PRICE...ARE MEETING THE  
PUBLIC'S CONCEPTION OF 1933 REFRIGERATOR VALUE



DOUBLE HYDRATOR CAPACITY

Costs only  
**\$96\***

● Here we picture six facts about the new Frigidaires. They explain why these remarkable refrigerators are rapidly lifting thousands out of the *prospect* class into the **BUYING** class.

**Fact 1.** The first major manufacturer in the industry to engineer from the ground up a quality refrigerator designed and built to sell for less than \$100.

**Fact 2.** Economy of operation in all models. The new Standard 43 Frigidaire actually uses no more current than one ordinary lamp bulb. A powerful sales appeal to which every buyer will react favorably.

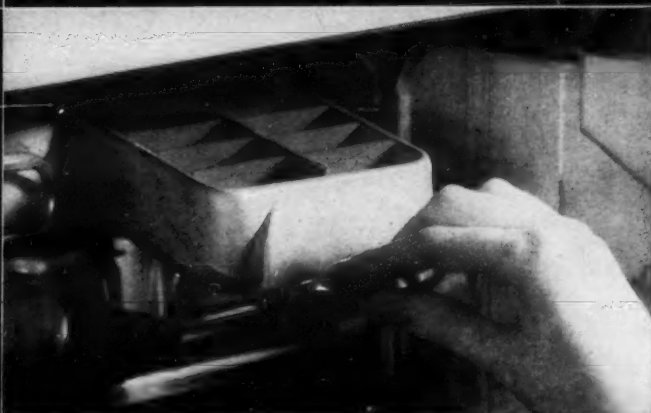
**Fact 3.** One-fourth more food space. Achieved by a remarkable new type of insulation that permits smaller *outside* cabinet dimensions while giving larger dimensions *inside*. Overcomes the common objection, "not room enough," that is so often heard from prospective buyers of the smaller models.

**Fact 4.** Double Hydrator capacity in the Super Series Frigidaires.

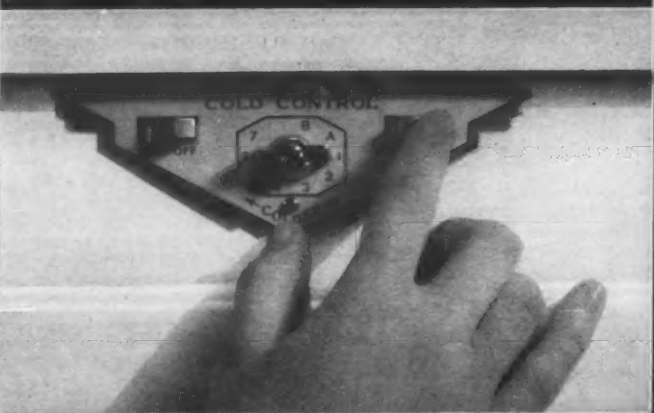
**Fact 5.** Automatic ice tray release in all models.

**Fact 6.** Automatic defrosting in all models.

Uses  
no more current  
than one ordinary  
lamp bulb



AUTOMATIC ICE TRAY RELEASE



AUTOMATIC DEFROSTING

Holds  
one-fourth  
more food

These are only six of many features of the new Frigidaires that give dealers powerful sales weapons with which to create new business. Remember, the new Frigidaire line includes two models in the Standard Series finished in sparkling white Dulux with porcelain interiors and six deluxe Super Series All-Porcelain models—all offered at new low prices. There is a Frigidaire to meet the needs of every prospect. Frigidaire Corporation, Subsidiary of General Motors Corporation, Dayton, Ohio.



# Frigidaire

A GENERAL MOTORS VALUE

\*\$96 Plus Freight—Installation and Federal Tax Paid



**ELECTRIC REFRIGERATION BUREAU**  
420 Lexington Ave. New York City



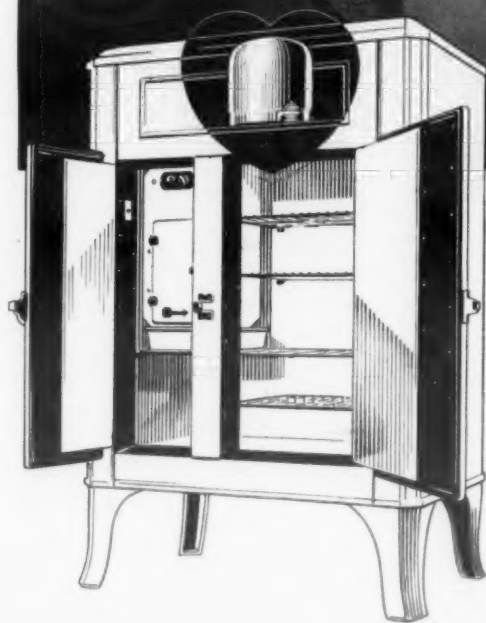
# MAJESTIC

can promise and *deliver*  
 . . . . **SURE-PROFIT SALES**



A BASIC Advantage  
 for Majestic Dealers  
 to talk about . . . .

THE  
 COLD DOME



AMERICA'S MOST NOTABLE VALUE IN  
 A DE LUXE 2-DOOR REFRIGERATOR

\*Electro-Sealed Cold Dome . . . \*Shelf area,  
 16.4 sq. ft. . . . \*105 ice cubes; 5 trays . . .  
 \*Stay-Kold defroster . . . \*Stay-Brite ribbon-  
 type shelves . . . \*Freeze-out trays . . . \*Iso-  
 lator wall construction . . . \*Acid-resisting  
 porcelain interior . . . \*Wear-proofed Elasto  
 exterior.

*Majestic dealers can sell refrigeration!* That makes  
 a big and vital difference in their profit picture.

The dealer's real profit on a refrigerator sale  
 is *what's left* after the servicing losses have been  
 added up, item by item, and subtracted from the  
*paper profit* that he thought he was going to make.

Majestic cuts down the servicing losses—builds  
 up the real profit—because Majestic Refrigeration  
 is *trouble-free* in the fullest sense of those  
 words.

The Majestic Electro-Sealed COLD DOME *seals*  
*out* trouble. Walls of steel, electrically fused to  
 steel, enclose the vital mechanism—the motor  
 and compressor—forever barring out dirt, damp-  
 ness, and abuse.

So lastingly trouble-free is this unit that Majes-  
 tic *unconditionally* guarantees it for three years.  
 No refrigerator with *exposed* mechanism attempts  
 to match this Majestic guarantee.

That's how Majestic provides SURE-PROFIT  
 sales. That's why it pays to *sell Majestic Refrigeration*—instead of “features” and trimmings.

Majestic dealers are making money *now*. Their  
 profits are staying with them! . . . Majestic  
 prices are \$35 to \$75 “below competition.”

*That's* the opportunity Majestic offers. Would  
 you like to share it?

**GRIGSBY-GRUNOW COMPANY, Chicago,** and  
 affiliates, with factories at Chicago; Toronto; Bridgeport;  
 Oakland; London, England; and Sao Paulo, Brazil.

# Majestic

**ELECTRO-SEALED REFRIGERATION**



## COMMENT

BY F. M. COCKRELL

### A Trip Down South

Last week I told about the first quarter of a 2,000-mile trip covering a 10-day period beginning the Friday before Easter. Stated purpose of the trip: To find out what kind of people are buying refrigerators this year, if any.

There was also an urge to get away from the bank-plagued atmosphere of Detroit where the economic picture is simply cockeyed.

Furthermore, it might as well be admitted, I wanted a rest. The News came through the financial fire with no visible scars. It appeared that our shirt and other outer apparel were still intact, but we had an uncomfortable feeling that somebody had snatched our underwear while we weren't looking.

Editor George Taubeneck doesn't stay in Detroit long enough to become inoculated with local conditions, but I have found it necessary to stick close to the office for several weeks—much too long for a trade paper publisher to stay in any one spot.

### Where Beer Is Medicine

There is no sign of beer down in Virginia. The state legislature adjourned without synchronizing with the national law and therefore Virginians will have to wait until the first of next year.

Permits may be issued to druggists, however, to sell beer on prescriptions and on April 18 the Associated Press reported from Richmond that 765 permits had been issued by the State Prohibition Department. Thus it appears that, in Virginia, thirst must be classified as a disease.

We had a delightful visit in Roanoke, Va. Flowers in bloom, the season seemed well advanced to a northerner. The air has a fresh tang like a mountain resort. The business section is on fairly level ground with the mountains in the distance. They may be looked at and enjoyed without having to climb them as a daily routine.

### H. C. Baker Co., Frigidaire Distributor

Mr. Baker of H. C. Baker Co., Frigidaire distributor at 29 Franklin Road, complained that shipments are slow in coming from Dayton. He was holding back orders for 69 units (note please, E. G. Biechler: What the hell's the matter with your production. This man wants refrigerators). While I sat in his office the telephone rang and he had to pacify a customer clamoring for delivery.

Mr. Baker mentioned that he had bought 50 extra copies of the March 22 Specifications Issue. He gave me an order for two more subscriptions, one to go to his home on Claremont Heights where it would be safe from the office people who had a habit of grabbing his copy before it got to him.

The Baker territory includes part of Virginia, Tennessee, West Virginia, and North Carolina.

### Thurman and Boone, Kelvinator Distributor

At the furniture store of Thurman and Boone, 405 South Jefferson St., Roanoke, I met Salesman R. L. Cochran who is now in his fourth year of refrigeration. He said: "I never saw so much interest or so many refrigerators bought for cash."

My opening conversation with Mr. Cochran was cut short by the entrance of customers. A middle-aged couple wanted to see the Kelvinators. It developed later that they came from Blacksburg, Va., and had been sent by the local dealer to the distributor's showroom where they might inspect a wider range of models. They came to the right place since Thurman & Boone have about 30 different sizes and styles on their display floor—a very complete assortment.

Here was a living answer to my question, tangible evidence that people are actually walking into refrigeration stores with intentions to buy. After listening to the conversation it was entirely obvious that the lady wanted an electric refrigerator, that she knew exactly what kind she wanted and that the whole procedure was for the benefit of friend husband.

She asked questions, she looked judiciously at the different models but gradually turned her attention, and that of the husband, to a deluxe porcelain unit with all the latest gadgets.

### Paint or Porcelain

The wife managed the demonstration from the start and Mr. Cochran very wisely followed her leads. First, she brought up the question of "paint or porcelain." The decision as to the relative merits of these two finishes was respectfully submitted to the masculine mind of the household, but you can guess that, when stated in

terms of "paint" or porcelain, porcelain would get the approval.

Similarly, the various sizes were considered. The lady appeared to be much in doubt as to the proper size for a family of two but she deftly focused attention on the 6½-cu. ft. model at \$257.00. Mr. Cochran, with his best the-customer-must-be-pleased manner, suggested that perhaps a 5-cu. ft. size would be plenty large for two people. He moved in the direction of the smaller unit.

The lady looked but stood her ground. Apparently her lord and master had missed the remark and she decided to let well enough alone.

During the inspection she had called attention to the freezing compartments, the "meat pan," the "hydrator," and other features and had not failed to note the absence of any item in the cheaper models.

Finally she turned to her guide and protector to settle the problem which was obviously too difficult for a weak woman to decide. "What do you think about those sizes?" she implored.

Mr. Cochran produced a folding rule and made comparative measurements after the manner that only men are capable of understanding.

Need I add that the substantial looking citizen of Blacksburg eventually exercised his best judgment and made a decision in favor of a 6½-cu. ft. all-porcelain Kelvinator costing \$257.00.

His last question: "Is that the cash price?"

The couple had scarcely left before another lady entered who wanted "to see the Kelvinators."

Mr. Cochran had told me that Thurman & Boone had ordered their third carload since April 1. (That was on April 17th.) I was beginning to be convinced.

### Richardson-Wayland Electric Corp.

At the Richardson-Wayland Electric Corp., General Electric dealer, 122 Church Ave. S. W., C. D. Johnston, store manager, was showing electric refrigerators to two women when I entered. More evidence that prospects are active in Roanoke.

All the banks except one are open here. Only the smallest bank in the city went into receivership. The large rayon mills of the Viscose Co. are busy. The shops of the Norfolk & Western R. R. are not running full time but the city has suffered no staggering blows. I understand that Roanoke scarcely knew there was a depression until 1932.

To return to Richardson-Wayland. This firm has been in business 22 years, mainly in the construction field. Now doing the electrical work on the new Bell Telephone building. Sell radios, washers, ranges, and electrical supplies. Have five outside salesmen on the entire line. Expect to sell about 200 refrigerators this year, of which 55 are already installed.

About half of this year's buyers pay cash, said Mr. Johnston. Working people are in the market. Doctors, lawyers and real estate men are not so good as prospects.

### Grand Piano Co., Majestic Dealer

J. W. (Jack) Johnson is manager of the refrigeration department of Grand Piano Co., 309 S. Jefferson St. He claims that they sell more refrigerators than anybody else in town. About 70 to 75 sales up to the time I called. Expect to place 250 during the year. Have two outside salesmen. In Majestic refrigerator business since 1929.

Long accustomed to time-payment sales, they finance their own paper, 10 per cent down and balance in 24 months. As they collect, they buy. If collections slow down they reduce their own purchases. If collections improve, they add to their stock.

During the past year, said Mr. Johnson, "there has been more going off the books than going on." I infer, however, that Grand Piano Co. does not depend upon Babson to tell them the buying power of the public. They read their own figures and chart their course accordingly.

### A Right Smart City

I had to wait for Mr. Johnson when I entered the display room because he was busy showing Majestics to a prospect. They are selling in this town, that is sure. Roanoke seems to be a "right smart" place, as they say down South.

I couldn't hear much of Mr. Johnson's conversation with his customer but I picked up some of the talk as follows:

Johnson: "How many in your family?"

Lady: "Funny how they all ask that question."

Johnson: "Well you should have about 1½ cubic feet per person."

Lady: "What's the price?"

Johnson: "This job sells for —."

Lady: "Don't you have any cheaper?" (Could not hear answer.)

Lady: "How many cubes does that one make?"

Lady: "Will the ice cubes stay in there—how long?"

Lady: "Is that cash or credit?"

Lady: "Is there a carrying charge?"

### Ice Eats You Up

Lady: "We haven't been in Roanoke long, only two summers, but long enough to know that ice eats you up. We have a refrigerator on the back porch and it costs 25 cents a day."

Lady: "I'll write to him. Have to write him today anyway. Is this the machine? (Looking at folder.) My son thinks we ought to get a Frigidaire but Mr. — doesn't like General Motors."

(I was burning with curiosity about that last remark.)

Lady: "That's a nice little box all right."

Mr. Johnson says that "the salary man is the best prospect regardless of what his salary is." He expects an

### KNOXVILLE BUREAU ADOPTS NEW CODE OF ETHICS

Code of Ethics  
Knoxville Electric Refrigeration and  
Cookery Bureau  
(Revised April 5, 1933.)

1. Members of the bureau agree not to approach a customer after a sale has been made by a competitor. A sale shall be considered to have been made when a signed Purchase Contract has been obtained on the partial payment plan, together with the down payment, or when a signed Purchase Contract has been obtained on the basis of a 30-day full cash payment. A sale is to be considered as having been completed under the above conditions, even though the refrigerator or range sold may not be in stock and must be ordered by the dealer.

2. Members of the bureau agree not to make derogatory statements before a customer about the ability or financial strength of a competitor.

3. Members will not encourage a salesman to leave the employ of another member.

4. Members of the bureau agree that electric refrigerators or ranges shall not be placed on free trial.

5. Members agree to establish and abide by a set schedule of quantity discounts for electric refrigerators or ranges purchased for apartment house use.

6. All members will make available to the secretary retail price schedules on domestic models and automatically keep the secretary informed of any changes.

7. It is agreed that members may rent water coolers if they wish, but members agree not to rent refrigerators or ranges.

8. Members may sell electric refrigerators or ranges at net cash, 30 days from date of sale, but will add carrying charges when an account is carried for longer than a 30-day period. Members agree not to allow any discount from established cash prices for spot cash payment.

9. Effort will be made to discourage down payments of less than 10 per cent.

10. Members of the bureau will not make a trade-in allowance on any type of ice refrigerator, coal-, gas-, oil-, or wood-burning range.

11. There shall be no discounts of any nature except as set forth in paragraph 5, of this code.

This code is subject to revision at any meeting of the bureau.

W. H. MCINNIS,  
Secretary.

increase in business after July 1. When Appalachian Electric Power Co. (subsidiary of American Gas Co.) dropped out of refrigeration last year he was sorry to see them quit. They were good clean competition. The power company still sells electric heaters and ranges, items which require market development and which have not yet reached the merchandising stage.

Grand Piano sells one leader model, a 4-cu. ft. Majestic, at \$104.00 with only \$5.00 down but they sell very few. It costs \$30, so they won't take a chance unless the customer's credit is extra good.

They make it a practice to give every unit 48 hours cooling before delivery to the customer.

### Reid & Cutshall, Westinghouse Dealer

Mr. Powell, manager refrigeration department of Reid & Cutshall, furniture store on Campbell Ave., was out but Mr. Cutshall kindly showed me their new large glass-enclosed display room. In addition to Westinghouse refrigerators, which they have handled for two years, the display included Westinghouse washers, ranges, irons, and vacuum cleaners, and Philco radios.

Flat Top Auto Supply Co., Bluefield, Va., is the Westinghouse distributor for this district.

Reid & Cutshall sold 50 Westinghouse units in 1932 and expect to place about 75 this year. Their price on the 4½-cu. ft. model is \$140, plus freight. They get \$198 for the 6-cu. ft.

and \$215 for the 7-cu. ft. size and find no resistance to these prices.

Although I heard complaint of price cutting, it is my impression that all the Roanoke dealers are realizing a fair profit and doing business on a saner and more substantial basis than in many other cities.

### Roanoke Electrical Show

The week before my visit, Roanoke refrigerator stores had their first co-operative electrical show. It was announced by an 8-page special section in the *Roanoke Times*, Sunday, April 2, signed by the following participating concerns:

Reid & Cutshall.  
Grand Piano Co.  
H. C. Baker Co.  
Richard & Wayland Electric Corp.  
Caldwell-Sites Co.  
Thurman & Boone Co.  
Giles Bros.

The Roanoke show was unique in that each dealer had his exhibit in his own store. Fifteen hundred dollars worth of prizes were offered. The coupons carried the names of all dealers but people had to make the rounds in order to get a chance at all the prizes.

The advantage of this plan was that prospects came into the exhibits a few at a time and the salesmen had an opportunity to give proper attention to each one. The crowds and distractions of a joint exhibit were avoided.

### Giles Bros., Norge Dealer

The three Giles brothers, now at Commerce and Kirk Sts., have been in business 31 years. They sell furniture, do their own financing, and watch their credits.

Four Norge units were in the window with a cut-away rollator compressor.

"The rollator is what sells this box," said W. L. Giles, a white-haired member of the brotherly trio. Then he gave me a demonstration of the rollator which would have made Howard Blood and John Knapp swell with pride.

When Mr. Giles talks you feel that you are getting the benefit of age and experience.

"Thirty-five years ago," he said, "I worked for a very smart man who told me that some day we would have a machine to make ice."

He twirled the rollator and beamed upon it. Obviously his wise old boss had the correct idea and here is the fulfillment of the prediction right before your eyes.

### Monthly Pay Makes Better Credit

Mr. Giles likes to sell to people who draw their pay by the month. They are better to collect from than those who draw each week.

They sold about 25 Norges the first year and as many so far this year. Have not had a repossession. Even if the customer has signed up, if the credit record is not first class, they return the order with thanks.

I am convinced that these furniture men in Roanoke know their stuff when it comes to credits.

### Roanoke Gas Light Co.

The man in charge of Electrolux sales at the Roanoke Gas Light Co., 123 Church Ave., was ill. Miss Frier, newly assigned to the floor, was anxious to be of service but no one had taken the trouble to inform her about the refrigerators. She will sell 'em too, if they will let her.

Which reminds me that I have long wondered why some one doesn't try women as refrigerator salesladies. I don't mean women as demonstrators, but on straight selling, particularly inside the store.

### Harrison-Hancock Hardware Co.

If you ever drive through Wytheville, Va. (population 3,500, south of Bluefield and about half way between Roanoke and Bristol) stop and eat at the Geo. Wythe Hotel. You'll find southern cooking which lives up to the tradition.

They served us Norfolk Spot (a new fish to us), and their smothered cabbage was a concoction such as we had never seen before.

The Harrison-Hancock Hardware Co. has stores at Wytheville, Pulaski, Christiansburg, and Rural Retreat (there's a romantic name for a town). They have sold \$30,000 worth of General Electrics during the past four years in the Wytheville store.

### More Cash Sales

Nine units sold so far this year (April 19th). Seven in the last two weeks. Four for cash. Three on instalments. Time paper is cleared through Commercial Credit Co. in Roanoke. Handle their own credits up to 90 days.

H. N. Grubb informed that the people had been "hit hard" by the low prices of farm products (cattle, corn, wheat, produce) but he said general sales of the store for April were ahead of last year.

Farmers have been buying only what they must have for the past two years. The store has been forced to discontinue extensive credit. It is mainly cash or nothing.

Mr. Grubb said that they set their

first year's quota at seven units but they sold 27 so the quota was revised. Now it is too high to reach but he figures they will sell 40 to 50 machines in the four stores this year.

Competition consists of Frigidaire, Westinghouse, and Norge. Power from the Appalachian Electric Power Co. starts at 9 cents and goes down to 1½ cents but it is necessary to use 250 kwh. per month to get the low rate.

Harrison-Hancock also sell Westinghouse and G. E. ranges. They have installed one electric water heater. It went to an official of the Southwestern Virginia, Inc., a regional chamber of commerce. Ninety per cent of the refrigerator sales have been to town people.

### Bristol, Virginia, Tennessee

Bristol (population 35,000) has the distinction of being located in two states. The Virginia-Tennessee line runs down the main street. There are two post offices. It ought to be a good place to publish a paper. If service is slow at one post office the publisher could try the competitor across the line.

People in this city must have a lot of fun with state laws. For example, beginning June 1 beer is legal in Tennessee but not in Virginia.

Ball Bros., Inc., furniture store has been handling Leonard refrigerators only a few days. They signed up through C. M. McClung & Co., wholesale hardware house in Knoxville and expect to sell mainly for cash.

East Tennessee Light & Power Co. sells Frigidaire aggressively. General Electric and Norge are also represented but I did not get to see them.

Two overall factories in Bristol are busy due to orders from J. C. Penney Co. Other industries are a tannery, thread mill, and pump mill. Columbian Paper Co. is located here, also shops of the Norfolk & Western and the Southern R. R. Dresses are made by Nichols Mfg. Co.

A busy corner drug store dispenses sodas in enormous glasses. The telephone is free to customers. Outgoing calls are frequent and brief. Folks call the druggist to get the correct time of day. It reminded me of the drug store I was raised in. I practically lived there from age 12 to 18.

### East Tennessee Electric Co., New Kelvinator Dealer

Arrived in Knoxville (population 128,000) after dark, checked into the Farragut and took a look at the main street windows. Found a Kelvinator store wide open at 10 p. m., a cheerful gang still on deck and with no apparent intention of going home.

This brand new dealership started business at 618 S. Gay St. on April 3rd. Nice store with a dozen of the latest models on display.

As I understand the set up, the new business was organized by Paul D. Fuqua, for many years a Frigidaire distributor. Met H. L. Johnston and R. D. Anderson. Johnston was with Frigidaire for eight years and Anderson with Tennessee Public Service.

Mr. Fuqua is now Kelvinator distributor with a territory which includes a large part of Tennessee and parts of Kentucky and Virginia.

The new store plans to take on Crawford-Graybar electric ranges soon. Knoxville is a good range market with about 1,200 users. The refrigeration saturation is unusually low—only 2,800 users in a city of 23,000 electric meters.

Knoxville citizens are reputed to be rather close with their money. This community got hooked in a big way by the banks a couple of years ago when the Luke Lea-Roger Caldwell enterprises took their tumble.

Since that washout there have been various mergers and receiverships. They tried to explain the situation to me but I got dizzy. The Hamilton National is open and about three others are in the hands of receivers (not conservators).

Rates for electricity in Knoxville are as complicated as advertising rates for *ELECTRIC REFRIGERATION NEWS*. Homes are charged \$2.15 for the first four rooms, 10 cents for each additional room, 6 cents per kwh. for the first four kwh. per room per month, 3 cents for the next 175 kwh., and 2 cents per kwh. for all additional energy.

Or, the householder may use the "lighting rate" which is 60 cents per month per customer plus 5 cents per kwh. for all energy. An electric refrigerator may be put on the rate but not a range or water heater.

### Knoxville Refrigeration Bureau

The Knoxville Electric Refrigeration Bureau, which has been operating since October, 1931, revised its by-laws on April 5, 1933, and changed its name to Knoxville Electric Refrigeration and Cookery Bureau. On the same date a new Code of Ethics was adopted—printed in full on this page.

Doc Allison of the Electric Refrigeration Bureau, New York City, was in Knoxville recently and, if I may believe reports, made a rip-rarin, go-getum speech to the salesmen assembled.

News item: Pendergraph Brown have just opened a new retail branch, to sell General Electrics, in the department store of S. H. George & Sons, Knoxville.



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LIGHT

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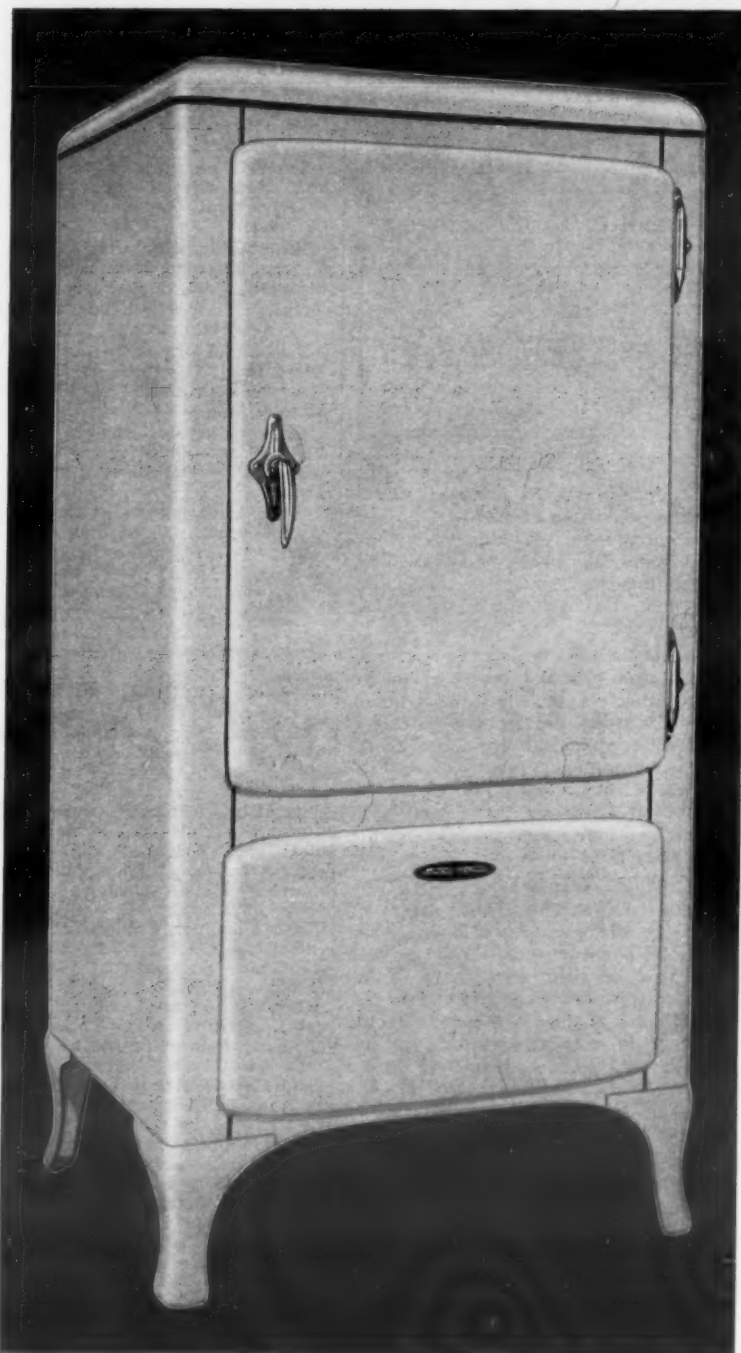
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Store \_\_\_\_\_

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The Newspaper of the Industry

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## An All-Industry Conference

FOR years the electric refrigeration industry has lacked a trade association. Most other industries of comparable size and importance have big, all-embracing leagues. These associations sponsor annual trade shows, at which all manufacturers exhibit their products to distributors, dealers, and sometimes to the general public. Moreover, at conventions and in committee meetings common industry problems are thrashed out, and sometimes bitter disputes are settled amicably.

Electric refrigeration, even though it may be facing many of the acute problems indigenous to adolescent industries, has no common round table (save for the pages of ELECTRIC REFRIGERATION NEWS) for discussing manufacturing practices and merchandising policies. Nor has it a general trade show, at which representatives of all branches of the industry may gather and compare notes.

### Loose Division of Interests

Thus far the industry seems to have been divided into two rather vaguely defined camps, with a number of hangers-on around the fringe.

One group—the older manufacturers in the business, those that had their genesis either from the automotive or electrical industries—has been allied with the National Electric Light Association (now the Edison Electric Institute).

The other group, composed chiefly of combined radio-refrigerator manufacturers and those newer manufacturers which sought and obtained distribution through radio merchandising ranks, generally met and exhibited at the Radio Manufacturers Association trade show and convention.

In the first group were to be found General Electric, Westinghouse, Frigidaire, Kelvinator, Norge, Servel, and other companies which have utility distribution. Majestic, a radio manufacturer, also belonged to this group; and exhibited at N.E.L.A. conventions rather than at R.M.A. trade shows.

### Radio Distribution Channels

The second set of manufacturers has been composed of concerns like Sparks-Withington, Crosley, Stewart-Warner, U. S. Radio & Television, and other combination manufacturers.

Gibson, Norge, Copeland, and Servel (which also have been allied with the older group) have exhibited at these trade shows because a considerable portion of their distribution has been obtained through radio channels. Likewise, Leonard, which is part and parcel of the Kelvinator Corp.

As can be seen, the cleavage between these two camps has not been well marked. Nor is either entirely representative of the industry-at-large. Yet they have been the only outlets for the gregarious urge available to the various elements in the refrigeration business.

Chief executives of the industry's major manufacturers have conferred, debated, and

played together in meetings of the refrigeration division of the National Electrical Manufacturers Association. At present Frigidaire, Kelvinator, General Electric, Servel, Norge, Universal Cooler, Majestic, Westinghouse, Copeland, Gibson, Crosley, and Mayflower are members of Nema. Roughly speaking, this formidable array of manufacturers represents more than 80 per cent of the electric refrigeration industry's total output.

### Conferring Instead of Damning

One of the principal worries of this group, however, and one of its most frequent topics of discussion (both formal and informal), has been the inroads of the smaller manufacturers not represented in their midst. In their turn, the smaller manufacturers have frequently been upset by what they consider the oppression of their bigger competitors.

Perhaps, instead of fretting and damning and waving arms in the empty air, some cooperative way could be made at an all-inclusive industry conclave. Often when warring elements get together and find out that the men they have been fighting aren't such bad guys, after all, mutually satisfactory agreements can be worked out.

### Opportune Time for Conference

During the forepart of June both the Edison Electric Institute and the Radio Manufacturers Association are scheduled to meet concurrently at A Century of Progress Exposition in Chicago. Possibly that would be a most opportune time for the first All-Industry Electric Refrigeration Conference.

ELECTRIC REFRIGERATION NEWS will welcome reactions to this proposal and suggestions for methods of bringing about its consummation.

## WHAT OTHERS SAY

### A NEW SPIRIT AT WORK

ONE marvel has trod upon another's heels at Washington, so fast has the procession of acts of Congress moved in these last seven weeks. It is probably no exaggeration to say that these few weeks have produced more epoch-making legislation than an entire four years of any one of a dozen other administrations that could be named.

As great a marvel as the legislation put through since the Thursday following March 4 is the amazing change that has taken place in American thinking and temper. There is almost a complete about-face from a condition in which our people were disagreeing bitterly about everything to one in which their thinking has been almost entirely about things on which they were willing to agree. Certainly not since the Civil War had there been such virulence and violence in political attack as marked the war waged in Congress and in the press over the policies and proposals of the last administration.

That we actually have passed out of the phases of the depression in which the recriminations of a distressed and exasperated people have spent themselves, so that reason and conciliation may do their work, may be too much to say. But there can be no question of the powerful effect upon the public mind of the truce that has come after three and a half years of bitter warfare. Moreover, seeing that willing acceptance of leadership in a grave emergency has been so salutary, the people are apt to go farther in support of what their President would have them do to make bad times better.

No matter with what surprise many now find themselves going with the majority; this experience in pulling together will be a tremendous factor in business recovery. In their distress the people have called long and loudly for a leader—such a leader as they did not find in sight. It may soon appear, as business skies brighten, that what was most lacking was not so much a leader as the will to accept leadership and stop fighting.—*The Iron Age*, April 27, 1933.

### PRACTICAL OBJECTIVES FOR RESEARCH

RESEARCH work, like many other activities, is apt to ride along smoothly in good times, but hit plenty of ruts and bumps during a depression. Just now, when management is finding it necessary to wield vigorously the financial pruning shears, the research department is under critical inspection regarding its place in the scheme of things.

A research program is especially difficult to evaluate because of its intangible as well as its tangible benefits. It is virtually impossible to apply a measuring stick which will reveal exact values. Probably the closest approach is the formula suggested several years ago by Dr. F. O. Clements, technical director of General Motors Research Laboratories. At that time he declared that "a research project, to be worthy of a place on our program, should do one or more of the following things: (1) reduce costs of production; (2) reduce operating costs to the user; (3) increase the utility of the product; (4) increase its sales appeal; (5) produce new business, and (6) determine technical information contributory to some other project."—*The Iron Age*, April 27, 1933.

## An Editor on Wheels

Stories of Interesting PLACES in the Refrigeration Industry

By GEORGE F. TAUBENECK

### Where to Eat In New York City

For three things is New York chiefly noted, in the eyes of out-of-towners: shows, food, and shops. Of the shops for women, save Klein's, we know little. The shows, of course, change with the seasons—and nowadays, with the weeks and days. Not being much of a gourmand, we can't do well by you on the task of rubbernecking the best eating houses. But we're acquainted with—and have heard about—a few, and will pass on a bit of the information we've been able to gather:

Ben Riley's Arrowhead Inn is a gathering place for showpeople and others in the good ole summertime. Famous for froglegs.

The German rathskellers (take your choice) on East 86th St., for those with sauerbraten tastes. Same tastes might well go to the Blue Ribbon at 145 West 44th St.—great favorite with musicians.

The heavy tariff restaurants on East 58th St., such as Le Mirliton, where socialites from the Fashionable Fifties dine.

Rathskeller Restaurant on East 52nd, 200 block. Swedish food, with subdued lighting and conversation.

Southern-cooked chicken at the Chicken Coop, 37 West 58th. Knives and forks prohibited by ground rules; prices are low.

Miyako's Japanese Restaurant, specializing in suki-yaki, offers practically every other Japanese and Chinese dish in the oriental cook book. No jazz band, dance floor, or garish decorations. On West 58th St., 300 block.

French cooking at the Chalet Suisse, 45 West 52nd.

Turkish restaurants on 30th, 31st, and 32nd streets. You won't know exactly what you're eating, but it'll be good.

Whispering Room of the Prince George hotel on East 28th St. Very discreet, quiet, and expensive.

Guffanti's spaghetti house at Seventh Ave. near 25th St.

Madame Petitpas' restaurant at 317 West 29th St., which is the favorite French restaurant of the genuine French people of New York.

Cavanagh's restaurant, 258 West 23rd. Fashionable for two-thirds of a century. You may see famous people there.

Alice McCollister's, at 43 Eighth St., and Mori's at 144 Bleecker St., in the Village. Also Broad's Chop House, for steaks, the Four Trees, El Chico, and Lee Chumley's in Greenwich Village.

Royal Cafe at 188 Second Ave., serves food on the sidewalk, a la Paris and Havana, in the summer. It is a gathering place for celebrities, especially on Sunday night, and for the intellectuals.

Russian Bear restaurant, 201 Second Ave., for Russian dishes, costumes, and music. One of the treats of the city.

Moneta's Italian restaurant, 32 Mulberry St. This place is expensive, but authentic. Seasoned travelers say no restaurant in Italy is more modernistically Italian or more gastronomically enticing.

Ye Olde Chop House at 118 Cedar St. This is down in the financial district, and attracts for luncheon those remaining Wall Streeters who don't carry pocket sandwiches. Also favorably and historically known luncheon houses for brokers and bond salesmen are Fraunces' Tavern, 54 Pearl St., and Parrish's chop house, 42 John St.

Racky's, 21 Frankfort St., is a habit with newspaper men. It was founded back in Civil War days, and has been catering to newsgatherers since the time of Horace Greeley.

Madame Giraud's French restaurant, at 115 Fulton St., which is popular for luncheons. Delicate escargots (snails) with garlic sauce are a specialty.

Grand Central Station Oyster Bar. They're dealt off the arm onto a long marble bar, and you eat them whilst sitting on a revolving stool. During seasonable times 50 barrels of oysters a day is an average consumption at this bar. Herbert Hoover is said to patronize this bar when in New York. Almost everybody else does. Best oysters in the city.

Sardi's, 234 West 44th St. Most famous theatrical restaurant in America (an imitator has recently sprung up in Hollywood). Eat there often enough, and you'll see "most every noted actor, actress, producer, and playwright in town."

Actors' Dinner Club at 165 West 45th, and Actors' Supper Club at the Great Northern hotel on West 57th are dollar-dinner restaurants run by the profession for the benefit of its unemployed. With your meal you're likely to get a thousand dollars worth of entertainment, from celebrities there, free.

Mrs. Stanley's, 136 West 46th, is another theatrical hang-out, as is the Chili Villa Mexican restaurant at 109 West 49th.

Reuben's at Madison Ave. and 58th, entertains a stage and celebrity client-

tele after midnight. Birthplace of generations upon generations of wisecracks.

Dinty Moore's is probably one of the best-known restaurants in the world. It's just off Broadway, at 216 West 46th St. Sometimes your bill is higher than you expect, but the food is unquestionably luscious, and your next-door neighbors may have been in the show you have just seen. Autograph collectors swarm around its doors.

Dave's Blue Room at 791 Seventh Ave., Lindy's at 1655 Broadway, and Roth's Grill are other Broadway favorites. Not fancy, but serve satisfying meals.

If you want to get tony, eat at the Crillon, which is just a few steps from the Waldorf-Astoria.

L'Aiglon at 55th St., east of Fifth Ave. A dressy spot with the best of French cooking. Those who know their sauces are regular patrons. Don't be shocked at the bill—you'd be lorgnetted.

Chico's Spanish Grill, at 80 Grove St. Spanish music, Spanish food, and Spanish people. Also imported Spanish decorations.

Beefsteak Charlie's, where the waiters look as if they had stepped out of an old chromo to harmonize on "Sweet Adeline," is located at 216 West 50th. It's quite popular, and not at all a place where peas are scooped with a knife.

Suesskind's Bavarian Restaurant at Lexington Ave. and 85th serves native dishes as well as American food in an appetizing fashion.

The Alps at 124 West 58th. Customers are of the band-box, lorgnette and monocle variety; the food (French) to match.

Karoly's at 678 Madison Ave. French pastries and Hungarian what-are-they-are specialties.

For Swedish pastries, than which there are no whicker, go to the Wivel at 254 West 54th St. All you can eat, and for a reasonable total, too.

For dinner dancing and floor shows we recommend:

The Hollywood, which is right in the midst of the Great White Way, and which usually has a good band, beautiful girls, and a happy crowd.

The Paradise, new rival and neighbor of the Hollywood, which presents the same type of show in a room designed by Joseph Urban. Celebrities will be found here, as well as at the Hollywood.

Club Pigalle, Seventh Ave. and 52nd. Fancy, sporty, expensive as they come, invigorating.

Petrushka, Broadway and 52nd. If you know how, get some vodka and enjoy the Russian surroundings and food as it should be enjoyed.

Carlton Club, 150 West 54th. Brand new and cellophoned.

El Garron, 159 W. 49th. Small, a touch of the romantic, with a Latin atmosphere.

Central Park Casino. Tops the list. Costs plenty.

Club Richman, 157 W. 56th. Especially good in the early morning. Generally a good floor show.

Greenwich Village: Greenwich Village Inn, 5 Sheridan Sq.; Pirates Den, 8 Christopher Sq.; Open Door, 135 MacDougal; Village Grove Nut Club, 99 Seventh Ave.; Village Barn, 52 W. 58th; Four Trees, 1 Sheridan Sq.; County Fair, 54 East Ninth; Blue Horse, 21 E. Eighth.

Tony Sarg's Bohemia, at Broadway between 52nd and 53rd. In addition to the food and music there is one of Tony Sarg's famous puppet shows. You can also buy specimens of these amusing little dolls.

And the following hotel restaurants: Biltmore, Cascades, Roosevelt, Park Central Coconut Grill, New Yorker Terrace restaurant, Paramount Grill, Pennsylvania Grill, St. Moritz Continental Grill, Astor Grill and Roof, Commodore Grill, St. Regis Seagrades, Ritz-Carlton Roof, and McAlpin Roof and Grill.

### Where to Stay

Where to stay? First of all the Waldorf-Astoria, finest new hotel in America. We rank it with the Atlanta-Biltmore in Atlanta, the Drake in Chicago, and the Nederland Plaza in Cincinnati as one of our favorite hostleries. It's almost too modern and too large. But you can't fail to like it.

Next, the New Yorker and the Lexington, both run by that ace of managers, Ralph Hitz. The Lexington is cozy and near the Grand Central Terminal. Somewhat out-of-the-way, but extremely popular with out-of-town business men, the New Yorker is as completely satisfactory as you'll want.

To the Pennsylvania, if you're accustomed to—and like—Statler service. Also handy to the Pennsylvania station, in case a quick exit is indicated.

Biltmore, Roosevelt, Park Lane, Plaza, Ritz-Carlton, St. Regis, Savoy-Plaza, Shelton, Sherry-Netherland, Park Central, Dixie, McAlpin, Barbizon-Plaza, and Mayfair are also recommended.



## WILLIAMS APPOINTS 3 NEW DISTRIBUTORS

BLOOMINGTON, Ill.—Three new distributors have just been appointed by the Ice-O-Matic refrigerator division of Williams Oil-O-Matic Heating Corp., according to S. C. Bell, sales manager of the refrigeration branch.

Arthur Jordan Piano Co. and the Homer L. Kitt Co. are the new distributors in Washington, D. C., and the Frank M. Brown Co. is the newly appointed distributing organization in Portland, Me.

The two Washington distributorships are closely associated, says Mr. Bell, as Homer L. Kitt, president of the organization bearing his name, is also secretary-treasurer of the Arthur Jordan Piano Co. Arthur Jordan, president of the Kitt establishment, is vice president of the Kitt establishment.

Frank M. Brown Co., whose territory includes all of Maine and a part of New Hampshire, was established in 1926, Mr. Bell says. Shortly after taking on the Ice-O-Matic line, the Brown company sponsored a refrigeration sales school, directed by E. P. Johnston, Ice-O-Matic's eastern division engineer, and Ralph Smith, sales engineer of the manufacturer.

## ARKANSAS DISTRIBUTOR HOLDS 25 SALES MEETINGS

LITTLE ROCK, Ark.—Emmet Massey, sales representative of Fones Bros. Hardware Co., Arkansas Westinghouse distributor, has just completed a series of 25 meetings held with refrigeration salesmen in as many branches of the Southwestern Gas & Electric Co.

Two district meetings were also held on April 12 and 15 to discuss spring selling plans with local managers of the utility company's branches.

First of these two meetings was held in DeQueen, under direction of W. N. Thomas, Southwestern's division manager in that territory, with local managers from Nashville, Ashdown, Mena, and Washington in attendance.

Local managers and salesmen from Springdale, Fayetteville, and Prairie Grove drove through a 12-in. snow to attend the second district meeting, which was held at Rogers, under direction of W. G. Church, division merchandise manager of the utility organization in that section.

Each of these two divisions of the Fones company's Westinghouse sales organization is more than 50 per cent ahead of its sales record for the same period last year, according to Mr. Massey.

## 10 LINES DISPLAYED AT SAN ANTONIO EXHIBITION

SAN ANTONIO, Tex.—Displaying 10 nationally advertised lines of electric refrigerators, a three-week refrigeration show is in progress at the San Antonio Public Service Co.'s display rooms. The show opened April 17 and will close May 6.

Cooperating distributors and the lines they are showing include: Beyer Co., Servel; E. J. Hermann Sales Co., Crosley; Sears Roebuck & Co., Coldspot; Southern Equipment Co., Norge; Southwest Appliance Co., Majestic; Straus-Frank Co., Frigidaire; Wright Bros. Refrigeration Co., General Electric; Radio Equipment Co., Grunow; Winerich Motor Sales Co., Copeland; and Westinghouse Electric Supply Co., Westinghouse.

H. G. McNeese is in charge of arrangements for the San Antonio Public Service Co., general host for the show.

## Kansas City Concern to Distribute Majestics

KANSAS CITY, Mo.—Jenkins Music Co. of this city has been appointed distributor of Majestic electric refrigerators and radios in the Kansas City territory, according to John Ditzell, general sales manager of Grigsby-Grunow Co., manufacturer of Majestic products.

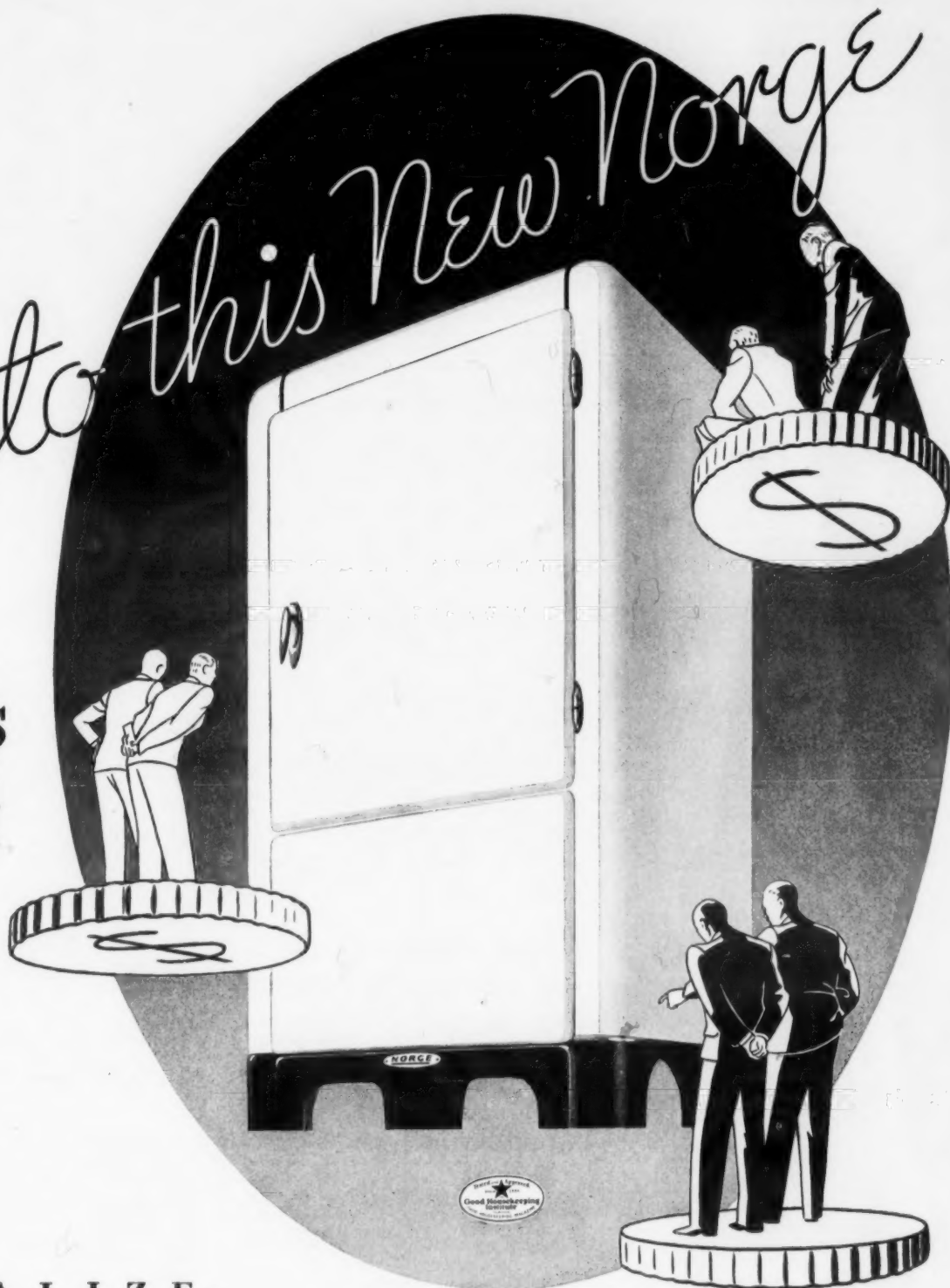
F. A. Briggs is general manager of the distributorship, and H. L. Schmutz is manager of the organization's radio and refrigeration department.

The company employs more than 500 people and operates branches in Topeka, Wichita, Leavenworth, and Salina, Kan.; Tulsa, Seminole, Oklahoma City, and Bartlesville, Okla.; Ft. Smith, Ark.; Amarillo, Tex.; and Joplin, Mo.

## Gibson Exports Show 100% Increase

GREENVILLE, Mich.—Since Jan. 1 of this year, Gibson Electric Refrigerator Corp. here has sold 100 per cent more refrigerators for shipment to foreign countries than it sold during the same period last year, according to Charles I. Horowitz, manager of Gibson's export division.

LET'S  
*Look into this New Norge*  
and see why it's  
a heavy profit  
line!



## DO YOU REALIZE:

- that Norge continues to be the sensation of the refrigeration industry?
- that Norge above all others has consistently built its policy around *dealer profits*?
- that Norge makes *dealer profits* possible by building into its product outstanding, exclusive sales features, such as the *Rollator*, the world's finest refrigerating mechanism, and many other features?
- that not content, Norge this year has added to its many other sales features—unsurpassed beauty of cabinet design that makes all other refrigerators obsolete?
- that the Norge dealer keeps his gener-

ous initial profit because of the inherent efficiency of the amply powered Rollator mechanism and its freedom from service difficulties?

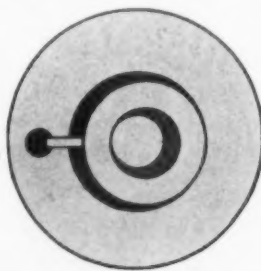
- that Norge dealers "stick" and are happy with their franchise?

- Let us tell you about Norge . . . the heavy profit, package line . . . that is attracting an unprecedented dealer following.

NORGE CORPORATION; DIVISION OF BORG-WARNER CORPORATION, 658 EAST WOODBRIDGE ST., DETROIT, MICH.

**THE ROLLATOR** • *A roller rolls and there's ice.*

*That's all there is to the simple operation of the powerful Norge Rollator mechanism.*



# NORGE

*Rollator refrigeration*



## AIR CONDITIONER FOR HOME BUILT BY YORK

(Concluded from Page 1, Column 3)  
frigerant (described below) which will "power" the air conditioners were designed primarily for air-conditioning duty.

Now in production at the York plant is the company's new line of Freon compressors, designed for use with air-conditioning and beer-cooling equipment and for other types of commercial application. These units are used in the new air conditioner.

Present schedules provide for manufacture of 30 types and sizes of the new unit, ranging in capacity from 1/4 to 20 hp., according to York officials.

Feature of the compressor, these men say, is its low friction. Crankshaft sealing mechanism is packingless, and the compressor's valves are made from steel imported by the York company from Sweden.

To market the new line of compressors and air-conditioning systems York Ice Machinery Corp. has organized a new "commercial division." William S. Shipley, president of the company, outlines the set-up of the new division as follows:

"The purpose of the commercial division is to promote and develop sales in electrical refrigeration and air-conditioning machines of the commercial type and to cover every necessary step from the production of the equipment in the factory to the final placing of this equipment in the hands of the ultimate user.

"A group of 10 executives—whose combined service with our company totals 178 years—will direct the activities of this new division. C. A. Pearson has been appointed manager of the new division.

"In each of the 10 branch offices, a supervisor has been appointed in charge of the commercial division. These supervisors will establish dealers in the cities in which the branches are located and will appoint distributors in adjacent territories.

"Exclusive territories will be allotted to the distributors in which they, in turn, will appoint dealers to carry either the commercial refrigeration or air-conditioning line—or both.

"Sales schools under the direction of the supervisor have been installed in each of the 10 branch offices where distributor and dealer salesmen will be given complete instruction.

"For the present, installation and service will be provided through the 71 direct factory branches of the York Ice Machinery Corp. A service school has been established at the factory for instruction in installation and servicing for the distributors who will, as soon as possible, take over this operation in their respective territories.

"All dealers will stock and display equipment but will not be required to install and service except in special instances.

"In addition, the dealers will be aided by an aggressive merchandising plan consisting of advertising in general magazines and trade papers, newspaper and magazine publicity, direct mail advertising, sales bulletins, sales engineering manuals, and display installations."

## AMERICAN BLOWER BUILDS HOME AIR CONDITIONERS

(Concluded from Page 1, Column 4)  
announcement of the equipment, according to H. E. Barth, sales manager.

The unit consists of a hot water heating plant and an American Blower conditioning unit comprising two sets of coils, an air filter, and two Sirocco fans for circulating the warm or cool air.

System is called the "warm air type" by its manufacturer, as the same ducts which circulate heated air in winter are used for distributing cooled air during summer months. The Sirocco fans will deliver from 1,200 to 4,200 cu. ft. of warm or cooled air per minute.

Two surface coils in the conditioning unit are used in both the heating and cooling operations. Hot water is circulated through these finned copper elements in the winter and cooled water is used in summer. After passing through the filter, the air is forced through the two coils for cooling or heating.

In some parts of the country, city tap water is sufficiently cool to be used for summer cooling and will enable the home owner to maintain a temperature several degrees lower than the outside thermometer reading, says the manufacturer.

If mechanically refrigerated or ice-cooled water is used, the water is circulated to and from a supply tank.

Where ice is to be used, the company suggests that the supply tank be imbedded in the yard. The tank has an outside service trap for delivery of ice.

The amount of ice used, American Blower engineers say, depends upon the amount of cooling desired, and the size and construction of the residence. In most cities, they recommend that ice be used only during the hottest hours of the afternoon and that tap water be employed during the remainder of the time.

## LIQUID CARBONIC BUILDS FOUR NEW BEER COOLERS

(Concluded from Page 1, Column 1)  
one for water. Model 266 has storage space for two half-barrels and has two beer faucets and one water faucet.

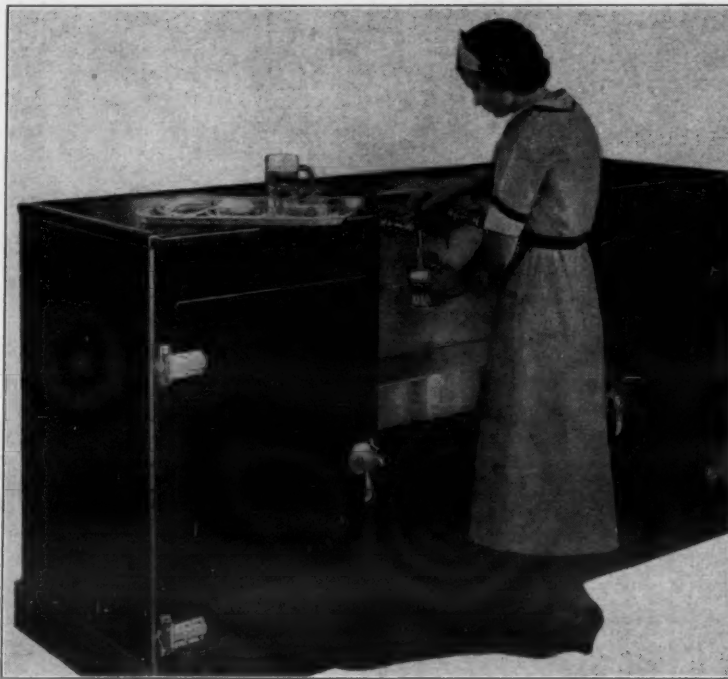
Other two new units just introduced by this manufacturer are a two- or three-coil beer-cooling and dispensing unit and a four-coil unit of the same general design.

Either of these models is available with block tin water- and beer-cooling coils or with the Zahm cooling and dispensing system, and may be secured equipped with direct expansion coils for electric refrigeration, or with ice-cooling coils.

The two- or three-coil unit has two faucets for beer and one for water, and the four-coil model has four faucets for beer and one for water. Front of these models is faced with stainless steel from the drip pan up, the drainer and drip being finished in the same material.

These two models are lined with tinned copper, and are insulated with cork, according to the manufacturer.

## Cooler for Draft Beer



This is Servel's new beer-cooling unit which has storage space for two barrels of beer and 44 pint bottles.

## SERVEL MAKES DRAFT AND BOTTLE BEER COOLERS

(Concluded from Page 1, Column 2)  
in the top of the cooler forces a steady flow of cooled air over the bottles. The cabinet is equipped with a model 19A Servel commercial condensing unit. The cabinet is 27 1/2 in. wide, 26 in. deep, and 62 in. high.

Servel's new draft beer cooler is a finished in black panels, trimmed with burnished aluminum beading. The top is of hard moulded composition with a hardwood rim finished in resistant black enamel. The work-

### Bottle Cooler



A Servel Humidraft chills bottles in this unit.

board and back are of stainless steel, while the hardware and draft arms are chromium-plated brass.

Space for half barrels is provided in two refrigerated compartments, each 21 in. square and 36 in. high, lined with 18-gauge galvanized sheet metal. The barrels are connected with the two draft arms. Below the draft arms is space for 44 pint bottles or for glass chilling. All refrigerated space is insulated with 1 1/2 in. of waterproofed Temlok board.

This new Servel draft beer bar is equipped with a model 30-D or 40-AW commercial machine unit, and is available for an air pump or carbon dioxide connections. It measures 81 1/4 in. in length, 45 1/2 in. in height and 30 1/2 in. over-all in width.

For storage rooms to refrigerate several kegs of beer, Servel is offering its "Humidraft" fan-driven chilling unit.

## G. E. to Market 2 New Air Conditioners

(Concluded from Page 1, Column 2)  
for summer air conditioning, with self-contained condensing unit. This type unit is designed to cool, dehumidify, and circulate the air. It may be wheeled to any room where summer air conditioning is desired.

These new air-conditioning units embody developments of the General Electric Co. and the Campbell Metal Window Co., which is associated with the American Radiator Co.

## Frisco Cools Trains By Own System

SPRINGFIELD, Mo.—A new dual-purpose cafe-lounge car, air cooled by a new system for which the plans were worked out in the Frisco railway shops here, has been placed in service on trains No. 9 and No. 10 between St. Louis and Oklahoma City.

Four similar cars, all of which are to be equipped with the new cooling system, will be built in the shops.

John G. Hayes, general foreman of the car shops, is the designer of the new set-up which washes, chills, and circulates the air in the car. The system is said to be more economical than previous ones, lighter in weight and less bulky.

Eight 300-lb. blocks of ice, enough to last 12 hours in the hottest weather, are carried in the storage compartment underneath the car.

Railroad officials debated whether passengers would enjoy or dislike the very faint sound of running water through which the air passes in being washed and chilled. Although the sound can scarcely be heard even when the car is standing still, it will be eliminated in the other cars to be constructed.

Designed for double duty as a dining and observation car, the \$45,000 coach has a complete kitchen, a dining room seating 24 people, and a lounge room with 14 chairs, library table, and writing desk.

F. G. Baker, electrical engineer for the Frisco lines, redesigned the regular electrical plan to adapt it to the new cooling system.

## GAFFERS & SATTLER BUILDS FOUR UNITS

LOS ANGELES—Gaffers & Sattler, manufacturing concern here, has established a department for the manufacture and sale of a new four-model line of electric refrigerators with a price range starting at \$129.50, installed.

Heading the manufacturer's refrigeration department is H. D. Dargert, who states that for the present, the company will deal directly with its dealerships. The new refrigerators bear the name of their manufacturer as a trade name.

### Capacities of Two Models

Model 5 has a net capacity of 4.43 cu. ft., and model 6 has net storage space of 5.78 cu. ft. Net capacity of model 7 is 7.48 cu. ft., while that of model 8 is 8.3 cu. ft. Installed prices on these units are \$129.50, \$179.50, \$197.50, and \$215, respectively.

Gaffers & Sattler is manufacturing its own cabinets and compressors, the latter being of conventional design and using SO<sub>2</sub> as the refrigerant. General Electric capacitor (1/6-hp.) motors are used, and the evaporators are supplied by Mullins Mfg. Co. In all models, the compressor is below the food chamber.

### 'Zeroell' Insulation

"Zeroell," a felted mineral wool, is the insulation used, according to the manufacturer, which is advertising the new units, as "the most heavily insulated refrigerator on the market."

Model 5 has 3 in. of insulation in its top, sides, and bottom, and model 6 has 3 1/2 in. in all parts. Models 7 and 8 have 3 1/2 in. of Zeroell in their tops and sides, and 4 in. in their bottoms.

Interior of each model is finished in porcelain, the exterior in lacquer. Model 5 has two ice cube trays making 56 cubes at a freezing. Models 6 and 7 have three trays making 84 cubes at a freezing, and model 8 makes 112 cubes with its four trays.

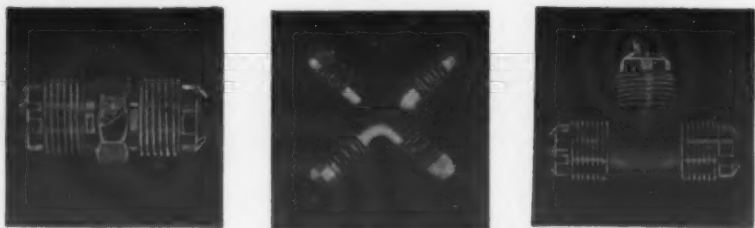
A one-year factory guarantee covers both cabinets and compressors of the new line, according to the manufacturer.

## ALUMINUM FOIL USED TO INSULATE NEW CRUISER

NEW YORK CITY—Approximately 3,000 lbs. of Alfol aluminum foil insulation were used in construction of the U.S.S. *New Orleans*, which was launched on April 12 as the first of five new 10,000-ton 8-in. gun treaty cruisers being built by the United States government.

The insulation was used in the ship's bulkheads, sides, magazines, cold storage spaces, boiler walls, turbines, and pipes, according to officials of the Alfol Insulation Co., the manufacturer.

Foil weighed only one-sixtieth of the materials which it replaced, it is reported. Alfol is aluminum foil .0003 in. thick which, in its crumpled form, is either hung or wrapped about the object to be insulated, the manufacturer states.



BUILT RIGHT—TO STAY TIGHT.

## BULLDOGS!!

Everybody admires a bulldog for his strength, fighting heart and ability to take punishment without letting go.

Fittings used in automatic refrigeration must stand a lot of abuse. They must have the ability to hold the pressure of refrigerants and to keep such refrigerating agents from leaking.

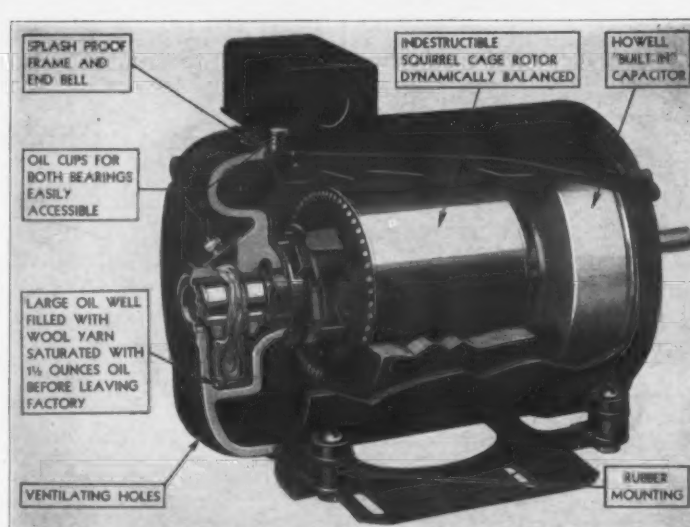
Commonwealth fittings are bulldogs too; designed and manufactured to stay tight without seepage or leakage under any steam pressure. They are safe to use in any place in automatic refrigeration.

Every fitting receives 100% inspection; each tube seat is protected and the user can depend on absolute uniformity.

A catalog describing stock sizes and patterns as well as illustrating many types of special fittings is yours for the asking.

Send for Catalog No. 36

COMMONWEALTH BRASS CORPORATION  
5781 Commonwealth Ave.  
DETROIT



## Consider These Motor Facts

IN considering your motor needs keep in mind the fact that back of the Howell perfected Capacitor Start Motor, is over five years of pioneering development—not one year—but over five years.

That means something in de-

pendable motor service—to the dealer—to the manufacturer.

That same quality that has made Howell Red Band motors make good on the hard jobs in industry, is inherent in the Howell Capacitor Start Motor for refrigeration.

Howell Sales and Service in over 50 Principal Cities

Howell Electric Motors Co.  
Howell Michigan  
Pioneer Builders of Capacitor Start Motors



## PISTOW WILL HEAD LOS ANGELES A.S.R.E.

LOS ANGELES—R. E. Pistow was elected chairman of the Los Angeles section of the American Society of Refrigerating Engineers for the 1933-34 season at a meeting of the local section, Monday, April 11.

Herman Vetter was elected vice chairman and L. P. Roth, secretary.

W. L. Holladay of George Belsley Co., local General Electric distributor, told the engineers of four recent refrigeration developments introduced to the small machine field by General Electric Co., and R. O. Miller described two new refrigerants—dichloromethane (Carrene) and dichloro-tetrafluoroethane (F-114).

"The first of General Electric's new developments is the small forced-draft type low side made to handle commercial refrigerators from 40 to 500 cu. ft. in capacity. These low sides may be used in multiple for refrigerators of more than 500 cu. ft.," Mr. Holladay stated.

### Three Types of Low Sides

"In discussing it let us consider three common types of low sides for small commercial boxes. If an ice-making coil is used the evaporator is usually about 15° F. with temperature of air leaving coil of 17° F. If the average refrigerator temperature is 40° F. the relative humidity will be about 35 per cent, obviously causing considerable dehydrating effect on food.

"In a finned coil the temperature variation is wide, averaging about 20° F. with air leaving the fins at 22° F. with a box temperature of 40° F. The relative humidity here will be about 50 per cent. If the box were overcooled, more space would be lost, but coil temperature would be 30° F., air temperature 32° F., and relative humidity raised to possibly 75 per cent.

"With the new General Electric coil the average temperature is about 30° to 32° F. and the air temperature leaving the coil 34° to 36° F. with a box temperature of 40° F. The humidity is about 85 per cent. Under such humidity conditions even with a rather high air velocity, dehydration does not take place," Mr. Holladay said.

"One advantage of this coil type is the small space required, another is the fact that the air velocity decreases the odor transfer problem, and still another is the absence of temperature variation at different points in the refrigerator."

Mr. Holladay said that the second contribution is the new line of commercial units, ranging in size from 1/4 to 3 hp. This line is made in a number of overlapping sizes with several possible speeds and motor sizes for each different unit.

"The third contribution is the three new models of household units which have been brought out during the last few months," the speaker continued.

"A single vane rotary compressor is used, the same compressor operating all three models. It is only necessary to change the speed in order to provide different output values.

"Stainless steel welded evaporators are used, made of two sheets and corrugated, producing the effect of coils."

In concluding his talk, Mr. Holladay said: "the fourth contribution is a new type refrigerator with a 'Monitor Top' unit using a rotary compressor. In this unit is a centrifugal unloader so that when the motor speed decreased the high side is bypassed to the low side. This allows the motor to start without load making possible the use of a motor of the split-phase type.

"The refrigerant in this rotary unit is a new one called methyl formate. The boiling point is 88° F. and at 15° evaporator temperature the low side operates at a vacuum of 25 in. of mercury."

### Discusses Refrigerants

Mr. Miller followed Mr. Holladay as the next speaker.

"The first refrigerant which I will discuss is similar in characteristics to methyl formate, and is called carrene, with a chemical name of dichloromethane. The unit using this refrigerant operates at a vacuum of 25 in. to 27 in. of mercury on the low side and a vacuum of about 6 in. on the high side, under ordinary room temperatures.

"A dryer is placed in the high side of this unit to remove any trace of moisture and in case of an air leak into any part of the unit, all of the refrigerant rushes into the low side. Air is purged from the high side by heating the float when the pressure will raise to 14 or 16 lbs. If the purge valve is opened the air will be released and the unit will resume proper operation," Mr. Miller said.

"The other new refrigerant is F-114, with the chemical name of dichloro-tetrafluoroethane. The refrigerator using this refrigerant employs a rotary compressor using a 1/20-hp. motor and operates at about 12 in. vacuum on the low side.

"Leaks of both of the above refrigerants are located by means of the halide leak detector which consists of an alcohol torch, the flame of which turns from blue to green under the action of the refrigerant."



# Would you balk at 30¢ to sell her a refrigerator 15% better?

Thirty cents for car fare or telephone or postage is a small item if it sells a \$99 refrigerator.

Yet a difference of only 30c between the cost of the poorest and the best insulation makes a difference of as much as 40 per cent in the efficiency of any refrigerator.

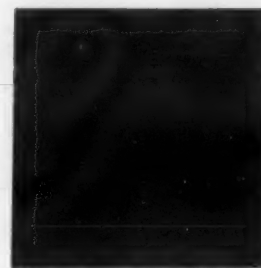
These are strong statements. But as facts they are as true as the principles of mathematics. They invite your consideration as an important factor in today's refrigerator selling.

Demands from dealers and distributors for lower and lower refrigerator prices call for cheaper merchandise. Cheaper merchandise means cheaper parts. And the choice places to cut costs are where it doesn't show.

But insulation is too vital a part of a refrigerator to stand for mere cheapness. Loss of quality through insistence on cheapness results simply in loss of efficiency. Trouble follows as certainly as night follows day. Trouble for the dealer.

Rule-of-thumb methods of testing do not assure satisfactory refrigerator performance. Yet complete information can easily be secured about the kind of service any refrigerator will give in Mrs. Buyer's kitchen for the next two or three years—or six or eight. And proof of high grade performance can be provided right on the show room floor.

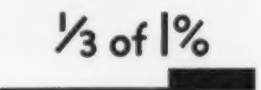
Dry-Zero insulation will improve any refrigerator built today with any other kind of insulation at least 15% in permanent performance. We will be glad to have you ask for proof of this statement.



Cost Cheapest  
Insulation



Cost Dry-Zero  
Insulation



Added Refrigerator  
Cost



Added Refrigeration  
Efficiency Over  
Next Best Insulation

The Dry-Zero Laboratory is unique in America in its complete equipment, its dependence solely on mechanical and electrical control, and its concentration on refrigeration research. It is open and available to anyone in the refrigeration industry. Basic information which it develops is freely at your disposal. Detailed findings are available to any manufacturer about his own product. Dry Zero Corporation, Merchandise Mart, Chicago, Illinois. Canadian office: 687 Broadview Avenue, Toronto.

THE MOST EFFICIENT  
COMMERCIAL INSULANT KNOWN **DRY-ZERO**



## AIR CONDITIONING

### CARRIER INTRODUCES 2 WEATHERMAKERS

(Continued from Page 1, Column 1) come, expressing appreciation to the delegates who came from distant points.

Donald French, vice president in charge of engineering, spoke next on "Carrier Refrigeration," describing some of the problems in designing the Carrier commercial machines, and showing how the smaller machines had been built with a background of large machine experience, unlike many commercial machines which were "designed up" from household refrigerators.

Next on the morning's program was Walter Jones, designing engineer, who announced that production is now fully established on the Carrier 5000 series (from 1/4 to 3 hp. both air- and water-cooled).

Citing features of design, he mentioned the eccentric drive which Carrier engineers adopted because of their experience with it in all Brunswick machines built since 1901. Discharge and piston valves of considerable size were devised to minimize gas velocities, and to accommodate refrigerants such as F-12.

Cylinder heads were not cooled in the small machines, he pointed out, because no carbonization of the lubricant was developed under the temperatures reached by the head, and the designers preferred to provide a con-

denser coil that was ample for all cooling requirements.

"The Manufacturing Picture" was next discussed by P. V. Osborn, manufacturing manager. Mr. Osborn described the production equipment installed to make the new machines, explained inspection procedure, tolerances, testing facilities, etc.

J. A. Carey, sales manager of the Eastern region, concluded the morning session with a talk on "The Dealer's Opportunity." He stressed particularly the advantage of "selling the product of the product"—telling a prospect what results and advantages mechanical refrigeration will bring him. He warned the assembled salesmen against using too much engineering in their sales presentations.

The afternoon session was presided over by H. P. Gant, vice president and director of the Eastern region, Philadelphia. He explained the internal organization of the company, and told how regional and branch offices will be prepared to give sales and engineering aid to dealers.

Mr. Gant also told how dealers and distributors can help, and will be compensated for finding and cultivating prospects for central station air-conditioning installations for Carrier Engineering Corp., the company which handles large contract work.

"The Dealer—His Market and His Problems" was treated next, by H. L. Laube, special field representative. Recalling that many economists expect the small retail business unit to feel recovery from the depression first, Mr. Laube showed that if that is true the commercial refrigeration salesman

should be quick to profit by it because that classification is the primary market for commercial refrigeration.

The replacement market is one which every commercial refrigeration salesman should give serious attention, Mr. Laube declared. In this group are replacement of short-lived machines that are worn, those that do not meet modern requirements of temperature and humidity, those that are too small, and old manually operated ammonia machines that are expensive to run.

As an example of the last, he told of replacing a 6-ton, 15-hp., non-automatic ammonia plant with a new 3-hp. methyl chloride plant. The new automatic system cost about 75 per cent of the old one, and power savings indicated that it would pay its investment in 3 1/2 years.

#### Factors in Surveying Job

Desirability of satisfied users of equipment was stressed by several of the Carrier speakers. In this connection Mr. Taube pointed out that butchers have associations, dairy men have associations, etc., and when groups get together they are likely to discuss refrigeration equipment.

Good application engineering is predicated on three factors: first, an intelligent survey of needs; second, correct selection of equipment; and third, proper installation and service.

In conclusion he opined that the outlook for commercial refrigeration is better than that for household this year. This belief was based on:

1. Comments in the Jan 4 issue of ELECTRIC REFRIGERATION NEWS, in which executives from companies making both types of equipment had greater expectations for commercial.

2. There is less competition in commercial than in household refrigeration.

3. Commercial refrigeration gives a salesman a better opportunity to increase his compensation.

The next speaker, W. B. Rorison, refrigerating engineer, first related early developments in refrigeration, early compressors, first cooling coils, difficult manual controls, and showed how engineers have improved their products.

#### Cold Diffusers

"Cold Diffusers," Carrier's forced circulation cooling units, were described in detail, both in operation and application. Due to the interesting technical nature of Mr. Rorison's paper, it will be published in an early issue of ELECTRIC REFRIGERATION NEWS.

Application of the large cold diffusers to cooling of produce, butter, eggs, milk, fruit, sausage, meats, etc. was discussed next by C. I. Elliott, sales engineer. In one case, Mr. Elliott reported, 5,000 ft. of direct expansion coil was replaced by two large cold diffusers.

He also told about an installation in an ice cream hardening room where cold diffusers are used to hold a temperature of minus 45° F.—to harden packaged ice cream in two hours.

The use of small cold diffusers with methyl chloride or F-12 for retail store installations was next treated, by A. E. Rabe, sales engineer. He declared that it is sometimes possible to use a smaller compressor when a cold diffuser is installed, that cost of installation is less, and that salvage value is greater (when a re-possession is necessary).

#### Summarizes Program

Summarizing the day's program, Donald French spoke again, characterizing commercial refrigeration as both a responsibility and an opportunity for the dealer. The responsibility is to estimate and install a job properly; the opportunity, he averred, is in profitable business.

There are three ways to engineer a job, according to Mr. French:

1. Rule of thumb.  
2. Rule of thumb, plus a factor of safety.

3. Technically right.  
The last-named method permits the lowest selling price, as well as producing the lowest operating cost.

Last speaker on the afternoon program was C. R. Lyle, treasurer, whose subject was "Bright Spots on the Business Horizon." He remarked that if a treasurer can see bright spots, there must be some, as a treasurer is usually a most pessimistic person.

The "bright spots" were in steel, automotive, etc. lines, and improved business stability since the bank holiday.

#### Sales Skit

Delegates convened in the evening again for a banquet in the Newark Athletic club. J. I. Lyle, toastmaster, introduced Professor Richard Borden and A. C. Busse of New York University.

These two men gave a sketch "How to Win a Sales Argument." In a research which involved listening to over 15,000 actual sales solicitations, they concluded that salesmen fail to sell because they disregard one or more of these six rules:

1. Don't talk too much.  
2. Don't interrupt your prospect and don't argue.  
3. Don't be aggressively belligerent, over-positive, or argumentative in your attitude or statements.

4. Don't attack; inquire, particularly during the beginning of the interview.

5. Restate, in your own words, each important objection of the prospect.

6. When you begin to close, concentrate upon one key, issue, or selling point.

Tuesday's session, devoted almost entirely to air conditioning, was opened by E. T. Murphy, vice president and director of western and central regions (headquarters, Chicago).

Before introducing the morning speakers, Mr. Murphy spoke briefly on "Cooperation from Carrier Engineering Corp.," emphasizing the willingness of that organization to help dealers and distributors of Carrier Products Corp.

Thornton Lewis, executive vice president of the parent company, then discussed "We Foresee Competition." He recounted the rapid growth of the

ing retail trade, in improving human comfort, in increasing employment, and reducing costs of operation in industry. Mr. Carrier's views on these subjects were reported fully in the Nov. 16, 1932, issue of ELECTRIC REFRIGERATION NEWS.

"How to Organize an Air-Conditioning Department" was explained by the following speaker, R. F. Gray, special field representative of the company.

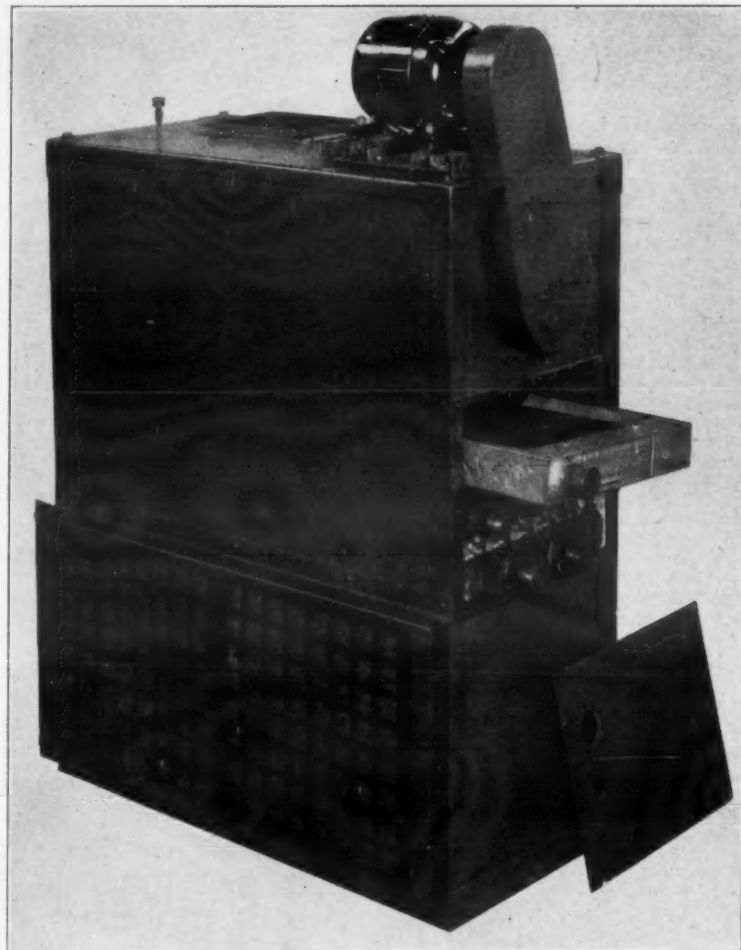
The office force, he said, should be divided into three divisions: engineering, accounting, and advertising; while the field forces may be grouped as employment, instruction, and sales records—control of salesmen's activities.

#### Organization of Time

To organize a salesman's time in a sales talk, he presented the following steps:

1. Approach.

### Store Weathermaker



This is the new 39-E air-conditioning unit presented to Carrier dealers in convention last week.

air-conditioning industry from just five years ago until the present time when there are hundreds of firms in the business.

A number of the devices now on the market under the term "air conditioning" are sold with exaggerated claims of performance, he declared. These are apt to injure the industry, he believes.

Mr. Lewis said that legitimate competition will help all reputable units in the industry, and urged the distributing organization to uphold the standards of air conditioning.

#### Carrier Makes Talk

Next speaker was W. H. Carrier, chairman of the board, who treated the subject "Air Conditioning—A Potential Factor in National and World Economics."

Mr. Carrier discussed the probable effects of air conditioning in stimulat-

2. Investigation.  
3. Presentation.  
4. Closing.

When the closing doesn't produce an order, he suggests going back to the second step, making the investigation over again (to find out why the closing was unsuccessful), and proceeding from there.

For the next part of the program the entire company adjourned to Carrier's model store around which hot humid air is produced by steam, and inside of which comfortable air conditions are maintained by a cooling system.

Here Donald French introduced two new products. First is the Carrier Store Weathermaker, suspended type 39D, which is already in production.

This is an overhead air-cooling unit, 20x21 1/2x22 in. in size, with 1 1/2 tons of capacity, for direct expansion of F-12 or methyl chloride or cold water circu-

(Concluded on Page 15, Column 1)

## HYDROGEN *Electric* WELDED Joints are Gas-tight

This is an important point to you manufacturers in the refrigeration industry. The Hydrogen-Electric Welded joint is a complete joint. The alloy which forms the bond extends into and around the grain boundaries of the parts being welded, producing a continuous structure across the seam. This joint is actually as strong as the steel itself!

Another point of extreme importance to refrigeration manufacturers is the fact that the parts come from the welding furnace absolutely clean and free from all scale and oxide both inside and out. Copper-Hydrogen-Electric-Welding is adaptable to practically every product manufactured from iron or steel on a production basis. It makes possible many far-reaching economies of both time and material. Complicated assemblies, expensive—even impossible by any other method—become simple when produced by Hydrogen-Welding. The illustrated booklet shown below will tell you how you can use the facilities of the Bundy Hydrogen-Welding furnace to achieve better appearance, greater strength, lighter weight, and important savings in material and labor. Parts may be furnished machined for a snug fit to be assembled by Bundy for welding. Or Bundy will furnish complete parts to your specifications. The coupon will bring your copy of "Hydrogen-Welding" by return mail.

## BUNDY TUBING COMPANY

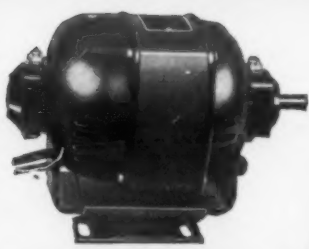
BUNDY TUBING COMPANY  
4827 Bellevue Ave., Detroit, Mich.

Please send me a copy of your illustrated Hydrogen-Welding booklet.

Name \_\_\_\_\_  
Position \_\_\_\_\_  
Firm \_\_\_\_\_  
City \_\_\_\_\_



## Do You Know!



The Leland Electric Co.  
Dayton, Ohio, U.S.A.

Canadian Address  
Toronto  
Cable Address  
"Lelcat Dayton"

That Leland brush-lift motors, with the special Leland cradle mounting, are unusually quiet and vibration free!

That, coupled with a continuous self-filtering lubricating system, they very rarely require service!

That Leland motors of this design are in widespread use in the field of electric refrigeration—and merit your investigation.

## Leland Motors



## PRODUCTS STUDIED BY CARRIER DEALERS

(Concluded from Page 14, Column 5)  
lation. The unit circulates 700 cu. ft. of air per minute, and will cool from 2,500 to 3,500 cu. ft. of space.

A double casing is used to eliminate sweating, and the cooler has been designed to operate with a small temperature difference between inlet and outlet air by providing ample air circulation.

Coil surfaces are cold enough to produce dehumidification, Mr. French said, and interior deflectors are installed to keep the condensate inside the cooler. A design feature of the new Weathermaker is a finned coil refrigerant superheater, over which entering air passes and is precooled, and in which suction gas is heated.

Second new product announced by Mr. French was the 39E series of Store Weathermakers. This is a floor-mounted machine providing all functions of complete air conditioning. It consists of an air-conditioning cabinet, housing heating and cooling coils, a filter section, and a multi-blade fan, feeding a vertical duct which projects conditioned air into a room above the heads of people.

Featured principle of the new conditioner is circulation of a considerable amount of air in the room by induced circulation created with a comparatively small primary air quantity.

### Three Sizes of Conditioners

The system is designed for installation behind a rear wall of a store. Three sizes, each with four different fan speeds, give a range of 6 to 18 tons of cooling capacity. By changing the fan speed, Mr. French points out, it is possible to match the cooling unit to the condensing unit.

Fan shaft is set in ball bearings, the motor has a resilient mount, and multiple V-belts drive the fan. Direct expansion coils for any of the standard refrigerants may be provided.

At this point, Mr. French remarked upon the need for making a thorough survey of a prospect's establishment before specifying equipment.

One way of installing the floor-type of store Weathermaker is to use multiple compressors and split coils—each compressor serving one or two coils not connected with the others.

### Advantages of Arrangement

Advantages of this arrangement, he said, are:

1. Power saving. Air-conditioning loads are decidedly variable, and on light loads it may be practical to operate only one small compressor.

2. Flexibility of control. It is easier with multiple compressors to match the refrigerant-condensing capacity of the system to the cooling requirements than with one large compressor—which would start and stop frequently under a light load.

3. Several small compressors can sometimes be installed at a lower cost than one large one.

4. Multiple compressors with split coils make it easier to meet code stipulations such as that limiting the amount of refrigerant in a direct expansion system to 20 lbs.

"How to Sell the Storekeeper" was the subject of the next talk, by H. T. Blocker, sales supervisor of the New Jersey district. Just as he was starting, a messenger rushed up to the platform with an important document—which turned out to be an order for air-conditioning equipment to be installed in the traction terminal of the New Jersey Public Service Co.

### Sell on Economics

According to Mr. Blocker, there is no cut-and-dried method of selling store cooling. Chiefly, it is a matter of learning the storekeeper's economic problems, and figuring out how to help solve them with air conditioning, he believes.

"Just wear him down with facts you know about his business," he said.

Two fields have been particularly receptive to store cooling, Mr. Blocker reported. One is candy stores, the other is ice cream stores.

Candy vendors have found that air conditioning not only keeps their confections attractive (and saves waste), but a cool atmosphere makes a person crave candy. This last is important, Mr. Blocker said, because candy eaters buy at the same places from force of habit, and are very likely to patronize a store all year 'round if they can be persuaded to eat candy in the summer. The same applies to ice cream stores, he stated.

"Don't bother with cigar stores, their trade is in and out too fast to appreciate cooling. Speakeasies are bad credit risks," he warned. "Look for well-established business men who want 'something new' to improve their business."

Just before lunch, B. S. Beach, advertising manager of the Carrier companies, gave a visual sales presentation of air conditioning with a talking projector system known as the Visulator.

The device is intended for education, instruction, and inspiration of small groups interested in air conditioning. Films, records, and machines are to

be available to Carrier distributors through certain offices of Western Union, Mr. Beach announced. Script for the record was written by D. C. Lindsay.

Chairman of the Tuesday afternoon session was E. T. Lyle, vice president and director of the northeast region (headquarters, New York City). He told some interesting facts about the air-conditioning installation in Rockefeller Center. Some 2,400 tons of refrigeration are employed for air conditioning the building, with equipment whose total connected horsepower is 5,208. Records of air conditions produced in the building and controls are all centralized in a special room on the eleventh floor.

S. B. Carpender, president of Carrier-Brunswick-International, Inc., followed with a description of the operations of that subsidiary.

### Application of Cold Diffuser

A new application of cold diffusers recently discovered by C.B.-I. was for cooling freight cars in transit on sea ships, Mr. Carpender reported.

Director of Design J. H. Holton next described the three distinct types of Carrier Room Weathermakers, each of which has about one ton of capacity. He first told of the cabinet type, designed for remote installation of the refrigerating machine, and providing complete functions of air conditioning.

Next he brought out several new features of the recently announced self-contained type (described in ELECTRIC REFRIGERATION NEWS, April 19). He pointed out the spring mounting of the motor-compressor assembly, connected to the solid-mounted condenser by looped tubing, sound insulation of the machine compartment, and the water-cooled coil over the compressor which absorbs heat from the compressor head by radiation.

### Utility Cooperation

Last-mentioned Room Weathermaker was the portable ice type. Each has its own fields of application, Mr. Holton averred. A new field for air conditioning which the self-contained unit is expected to enter is that of apartment houses—where space is at a premium, cooling is highly desirable, and remote installation of machines is difficult.

"Selling the User" was the topic next discussed by J. F. Munder, sales supervisor of the New York district.

"The public is fast becoming air-conditioning minded," Mr. Munder stated, "and prospects are interested in these four points:

"1. Will the equipment cool my space comfortably?

"2. How involved is the installing?

"3. Is the equipment quiet in operation?

"4. What is the price?"

Prospects are not interested in such technical factors as wet- and dry-bulb temperatures, he declared, any more than present automobile buyers are interested in carburetion. They want to know about effect and performance, he said.

### Carrier Home Humidifier

Due to the large potential revenue promised by air conditioning, the utilities are anxious to cultivate this new load, W. D. Graham, assistant director of the central and western regions, said in his talk on "Cooperation With Utilities."

As an example of utility cooperation, he told about the Public Service Co. of Northern Illinois which gives salesmen a commission of 8 per cent on direct sales, and a flat rate per horsepower on contract jobs.

He also mentioned Union Electric Light & Power Co., St. Louis; Commonwealth Edison Co., Chicago; and Detroit Edison Co. as firms which have cooperated in developing the air-conditioning market.

"Manufactured Weather for the Home" was treated by V. S. Day, chief engineer of Carrier Products Corp., in the last technical talk of the conference.

Mr. Day described the functions of the Carrier home humidifier, and the home Weathermakers using gas or indirect steam heating.

The problem in home humidification, he said, is in either underdoing it or overdoing it—not supplying enough moisture, or supplying so much that condensation appears on windows and walls.

Relative humidity in a home varies from 10 per cent when the outdoor temperature is 10° F., to about 40 per cent when the outdoor temperature is 60° F. Below a 25° outdoor temperature condensation occurs on the walls, whereas infiltration of outdoor air fixes an upper limit of humidification. Thus humidification is limited by present methods of house construction.

In spite of these limitations, however, there are between 125 and 150 days in the heating season of the North Central zone when humidification is practical, according to Mr. Day. The fan model of the Carrier humidifier serves this need by evaporating from 5 to 7 lbs. of water per hour.

He concluded with a detailed description of the operation of the home Weathermaker, which is designed to give a sustained steady flow of mildly tempered air throughout a house.

"Closing Remarks" of the conference were made by J. I. Lyle, president.

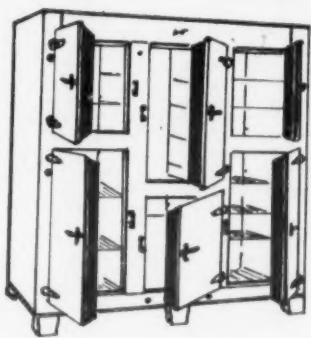
# COMMERCIAL CABINETS

By

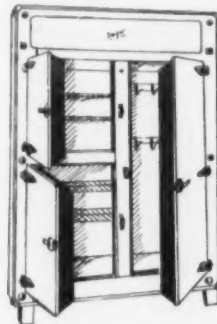
## Seeger

SAINT PAUL

## NEW MONEY-NEW DEAL

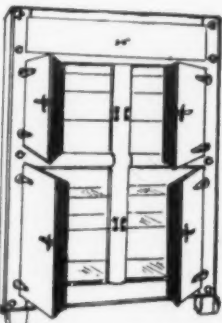


The return of Beer as a legal beverage has opened a flood of new cash into the coffers of many merchants, and in consequence there has resulted a demand for New Commercial Refrigeration Equipment from Grocers, Druggists, Delicatessens, Cafes, Restaurants and Hotels.



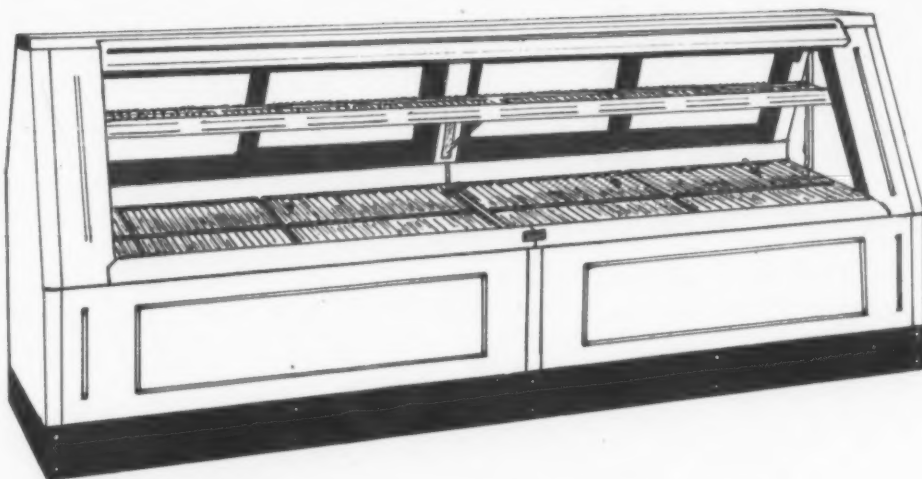
### Here's New Money For You

The Seeger Refrigerator Company offers an opportunity to meet this demand and get some of the new money through its large line of Commercial Cabinets—sold through dealers and distributors of Electrical Refrigeration.



### Inflate Your Profits

The Seeger New Deal provides a profit to Distributors and Dealers, on both Display Cases and Commercial Cabinets. You need not take partial profits when you should get the profit on the entire installation.



### 90,000 Can't Be Wrong

Over 90,000 satisfied Seeger Commercial Users—the result of perfect TEAM WORK.

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666 North Wabash  
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644 Beacon Street  
Kenmore Square  
BOSTON, MASS.



## ENGINEERING

### State of Ohio Adopts Safety Code for Mechanical Refrigerating Systems

Following is the new refrigeration safety code for the State of Ohio, sponsored and passed under the direction of the Department of Industrial Relations and the Industrial Commission.

It has been published by the state as a part of Bulletin No. 214, "Specific Safety Requirements Covering the Installation, Maintenance, and Operation of Pressure Piping and Mechanical Refrigerating Systems and Equipment."

#### PART IV Mechanical Refrigeration

Sec. 1. The requirements of Part IV shall apply to the safe installation, operation, and inspection of refrigerating systems employing a fluid which is expanded, vaporized, liquefied and/or compressed in its refrigerating cycle.

#### Definitions

Sec. 2. For the purposes of interpretation of the requirements of Part IV of this code the following definitions shall apply. Terms not defined herein shall be understood as having their usual and ordinary meaning unless a different meaning is plainly required by the context:

1. **AIR CONDITIONING SYSTEM:** A refrigerating system for the purification and/or control of temperature and/or humidity of air.

2. **BRINE:** Any liquid cooled by the refrigerating system and used for the transmission of heat.

3. **BRINE COOLER:** An evaporator for cooling brine in an indirect system.

4. **CHECK VALVE:** A valve allowing refrigerant flow in one direction only.

5. **COMMERCIAL SYSTEM:** A refrigerating and/or air conditioning system except a unit system used in a commercial and/or a business place, such as a meat market, store, florist shop, hotel, office building, restaurant, candy shop, bakery, and other places of commercial enterprise, assembled and installed in the manufac-

turing and/or business portion of any building in which refrigeration is not a major part of the enterprise.

6. **CONDENSER:** A vessel or arrangement of pipe or tubing in which the vaporized refrigerant is liquefied by the removal of heat.

7. **CONTAINER:** A cylinder for the transportation of refrigerant constructed to conform to the regulations of the U. S. Interstate Commerce Commission.

8. **DIRECT METHOD OF REFRIGERATION:** A system in which the evaporator is located in the material or space refrigerated or in air circulating passages communicating with such space.

9. **EMERGENCY RELIEF VALVE:** A manually-operated valve for the discharge of refrigerant in case of fire or other emergency.

10. **EVAPORATOR:** That part of a system in which refrigerant is expanded or vaporized to produce refrigeration.

11. **EXPANSION COIL:** An evaporator constructed of pipe or tubing.

12. **FACTOR OF SAFETY:** The factor of 3-1/3 which multiplied by the test pressure gives the probable rupture pressure.

13. **FLAMMABLE REFRIGERANT:** Any refrigerant which will burn or explode when mixed with air, such as ethyl chloride, methyl chloride, and hydrocarbon.

14. **FUSIBLE PLUG:** A device having a predetermined temperature fusible member for the relief of pressure.

15. **HYDROCARBON REFRIGERANT:** A refrigerant containing only hydrogen and carbon, as ethane, propane, isobutane, and butane.

16. **INDIRECT METHOD OF REFRIGERATION:** A system in which a liquid, as brine or water, cooled by the refrigerant, is circulated to the material or space refrigerated or is used to cool air so circulated.

17. **INDUSTRIAL SYSTEM:** A system used in the manufacture or processing of materials, such as in ice-making plants, cold storage warehouses, ice cream plants, dairy plants, packing houses, chemical

plants, and other places of similar industrial enterprise in which refrigeration is an essential or major part of the process.

18. **IRRITANT REFRIGERANT:** Any refrigerant which has an irritating effect on the eyes, nose, throat, or lungs, as ammonia and sulphur dioxide.

19. **LIQUID RECEIVER:** A vessel permanently connected to the high pressure side of a system for the storage of refrigerant.

20. **MACHINERY ROOM:** A separate room for the housing of any pressure imposing element, condenser, receiver, or shell type apparatus.

21. **MIXER:** A vessel or device for mixing the refrigerant with another substance.

22. **MULTIPLE SYSTEM:** A refrigerating system employing the Direct Method in which the refrigerant is delivered by a pressure imposing element to two or more evaporators in separate refrigerators or refrigerated spaces.

23. **PRESSURE IMPOSING ELEMENT:** Every device or portion of the equipment used for the purpose of increasing the pressure upon the refrigerant.

24. **PRESSURE LIMITING DEVICE:** A pressure or temperature-responsive mechanism for automatically stopping the operation of the pressure imposing element at a predetermined pressure.

25. **PRESSURE RELIEF DEVICE:** A pressure relief valve, a rupture member, a fusible plug, or other approved device for relieving pressure.

26. **PRESSURE RELIEF VALVE:** A valve held closed by a spring or other means, which automatically relieves pressure in excess of its setting.

27. **PRESSURE VESSEL:** Any refrigerant-containing receptacle of a refrigerating system other than expansion coils, headers, and pipe connections.

28. **PUBLIC BUILDINGS:** Are buildings as so defined in Title IX, Chapter 1, Public Buildings, Sections 2314 to 2366 inclusive of the General Code of Ohio.

29. **REFRIGERANT:** A substance used to produce refrigeration by its expansion or vaporization.

30. **REFRIGERATING SYSTEM:** A combination of parts in which a refrigerant is circulated for the purpose of extracting heat.

31. **RUPTURE MEMBER:** A device which will automatically rupture at a predetermined pressure.

32. **SEALED UNIT:** A pressure imposing element which operates without stuffing box and/or which does not depend upon contact between moving and stationary surfaces for refrigerant retention.

33. **SERVICE VALVE:** A key-operated shut-off valve in Class "C", "D", and "E" systems intended for use only during shipment, installation, or repair.

34. **SHELL TYPE APPARATUS:** A refrigerant-containing pressure vessel having tubes for the passage of a cooling or a refrigerating fluid.

35. **STOP VALVE:** A shut-off valve other than a service valve for controlling the flow of refrigerant.

36. **UNIT SYSTEM:** A system which can be removed from the user's premises without disconnecting any refrigerant-containing parts.

**Classification of Refrigerating Systems**  
Sec. 3. Refrigerating systems shall be classified according to the total weight of refrigerant contained in or required for their proper operation.

(a) A Class "A" system is one containing one thousand (1,000) pounds or more of refrigerant.

(b) A Class "B" system is one containing more than one hundred (100) pounds but less than one thousand (1,000) pounds of refrigerant.

(c) A Class "C" system is one containing more than twenty (20) pounds but not more than one hundred (100) pounds of refrigerant.

(d) A Class "D" system is one containing more than six (6) pounds but not more than twenty (20) pounds of refrigerant.

(e) A Class "E" system is one containing six (6) pounds or less of refrigerant.

**Industrial and Commercial Systems**  
Sec. 4. Industrial systems using the direct method of refrigeration may be located without restriction in separate buildings or separate sections of buildings provided:

(a) The pressure imposing element, condenser, receiver, and shell type apparatus of Class "A" systems are placed in a machinery room.

(b) That if a flammable refrigerant is used the entire building for a Class "A" system and the machinery room for a Class "B" system is made of non-combustible material.

(c) Machinery rooms of Class "A" systems using an irritant or flammable refrigerant have two exits.

(d) In Class "A" and "B" systems in which an irritant and/or flammable refrigerant is used, the doors of machinery rooms open only outwardly.

(e) The number of workmen employed above the first story does not exceed one for each two hundred (200) square feet of floor area of the stories above the first.

Sec. 5. Commercial systems using the direct method of refrigeration are limited in locations as follows:

(a) Any system may be installed in the basement, first story, top story, or on the roof.

(b) If a non-irritant and non-flammable refrigerant is used, systems installed between the first and top story shall contain a total of less than one thousand (1,000) pounds of refrigerant.

(c) If an irritant or flammable refrigerant is used and the building contains a residence, systems installed between the first and top story shall not contain a total of more than one hundred (100) pounds of refrigerant. If there is no residence, such systems may contain two hundred (200) pounds of refrigerant.

(d) If an irritant or flammable refrigerant is used, the entire system must be confined to the space occupied by a single tenant if the building containing such system is over three (3) stories in height or if it contains a residence.

Sec. 6. A machinery room shall be provided for the pressure imposing element, condenser, receivers, and shell type apparatus of commercial systems using an irritant or flammable refrigerant, as follows:

(a) For basement, first story, and top story systems containing over five hundred (500) pounds of refrigerant.

(b) For systems between the first and top stories of business buildings contain-

ing over one hundred (100) pounds of refrigerant.

(c) For systems between the first and top stories of a combination business and residence building containing over fifty (50) pounds of refrigerant.

(d) Machinery rooms, where required, shall be maintained vapor-tight to other parts of the building, except that all door or doors which open to other parts of the building shall be required to be self-closing and close-fitting and be kept closed at all times except during entrance or exit. This provision, however, shall not apply to dumbwaiter shafts, the door openings of which are protected with self-closing and close-fitting fire doors. No opening to elevator shafts shall be permitted from the refrigerating machinery room for Classes "A" and "B" systems unless a separate vapor-tight enclosure is provided around the elevator shaft openings. All doors of such enclosures shall be self-closing and close-fitting.

(Note: Closets opening only into refrigerating machinery rooms shall be considered as part of the room in which it opens. This applies to any refrigerant used.)

(e) Every machinery room shall be provided with independent adequate means of ventilation. If a mechanical system of ventilation is used it shall be so arranged that it may be started from outside the machinery room.

Sec. 7. All refrigeration in the following locations, except that provided by unit systems as permitted in Sections 51 to 55 and as permitted in Section 8 shall be supplied by the indirect method of refrigeration, with the entire refrigerant-containing apparatus placed in a machinery room.

(a) Theaters and similar places of public assembly.

(b) Exhibition and assembly halls above the first story.

(c) Buildings containing wards, or private rooms of hospitals.

(d) Asylum dormitories.

(e) Schools, except laboratories used for teaching refrigeration.

(f) Main entrances and exits of:

1—Public Buildings.

2—Business Buildings.

3—Factory Buildings.

(g) All places where unit systems are prohibited in Section 52.

(h) If a flammable or irritant refrigerant is used, any room not separated from locations a, b, c, d, and e (above) by an unperforated fire-resisting wall.

(i) In the above locations liquid cooled by an irritant or flammable refrigerant shall not be used in a spray system to cool the air (although this is one form of an indirect system).

Sec. 8. Evaporators of systems using a non-flammable and non-irritant refrigerant only may be installed in the air ducts

of air cooling and air conditioning systems provided:

(a) Non-corroding materials are used, or permanent protection against corrosion, such as galvanizing, is provided.

(b) The evaporators are tested to at least one and one-half times the minimum pressures specified in Section 34.

(c) The total refrigerant content of systems containing over five hundred (500) pounds of refrigerant shall not exceed one (1) pound for one hundred fifty (150) cubic feet of volume in the space to which the air is conducted.

Sec. 9. Every part of a refrigerating system, except pressure gauges and control mechanism, shall be designed, constructed, and assembled to withstand safely and without injury the required minimum test pressures specified in Section 34. The design and construction of pressure vessels shall conform to the rules of the Ohio Unfired Pressure Vessel Code.

**Safety Devices**

Sec. 10. All safety devices shall be constructed of materials suitable for the refrigerant used and unless otherwise specified shall be set to prevent the pressure exceeding the test pressure.

Sec. 11. Pressure limiting devices are required as follows:

(a) On every Class "A", "B", and "C" system operating above atmospheric pressure, to stop the action of the pressure imposing element at a pressure less than ninety (90) per cent of the setting of the pressure relief device located on the high pressure side of the system.

(b) On Class "C" and "D" systems, using a water cooled condenser, so constructed that the pressure imposing element is capable of producing a pressure in excess of the test pressure.

Sec. 12. Pressure relief valves are required as follows:

(a) In Class "A" and "B" systems, except those using centrifugal pressure imposing elements on the high pressure side between the main stop valve and the pressure imposing element, to relieve excessive pressure into the low pressure side of the system or to the atmosphere.

(b) In Class "A", "B", and "C" systems on shell type apparatus such as liquid receivers, condensers, evaporators, liquid separators, and absorbers, which can be shut off by stop valves.

(c) On the low pressure side of the system into which the relief valves on the high pressure side are discharged. This relief valve shall be vented to the atmosphere as provided in Section 18.

Sec. 13. Hand operated valves are required in Class "A" and "B" systems operating normally above atmospheric pressure to discharge the refrigerant from the high pressure side in case of fire. Such valves shall be located outside the machinery room or shall be controllable from the outside.

Sec. 14. Rupture members may be substituted for the relief valves in carbon dioxide systems or systems operating below atmospheric pressure.

Sec. 15. Class "C", "D", and "E" systems, unless so constructed that they will not burst due to the expansion of the refrigerant when subjected to abnormal outside temperature such as that generated in a fire, are to be protected by a pressure relief device.

Sec. 16. No stop valve shall be located between a pressure relief device or pressure limiting device and the part of the system protected thereby unless two devices of required size are used and so arranged that only one can be shut off for repair purposes at any one time.

Sec. 17. Refrigerant shall be discharged from the relief valve as follows:

(a) Where an irritant or flammable refrigerant is used, the discharge, if to the atmosphere, must be conducted to the outside not less than twelve (12) feet above the grade and not closer than ten (10) feet to any opening in any building, or closer than twenty (20) feet to any fire escape. The discharging pipe shall be not less than the size of the relief valve outlet. The discharge from more than one relief valve may be run into a common header,

the area of which shall be equal to the areas of the pipes connected thereto and the outlet of which shall be turned downward.

(b) Where ammonia is used in a Class "B" or "C" system, the discharge may be into a tank of water which shall be used for no purpose except ammonia absorption. At least one (1) gallon of fresh water shall be provided for every one (1) pound of ammonia in the system. The water used shall be prevented from freezing without the use of salt or chemicals. The tank shall be substantially constructed of not less than one-eighth (1/8) inch or No. 11 U. S. gauge iron or steel. No horizontal dimension of the tank shall be greater than one-half (1/2) the height. The tank shall have a hinged cover or, if of the enclosed type, shall have a vent hole at the top. All pipe connections shall be through the top of the tank only. The discharge pipe from the pressure relief valves shall discharge the ammonia in the center of the tank near the bottom.

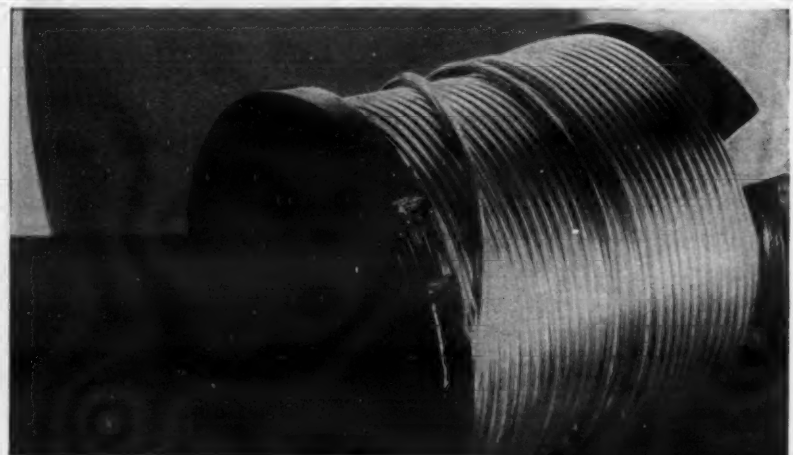
Sec. 19. The size of the relief valves as required, shall be as shown in Table 1 above.

Sec. 20. Where rupture members are permitted and used, the equivalent area

(Concluded on Page 17, Column 1)

TABLE 1  
REQUIRED SIZE OF RELIEF VALVES

Pounds of Refrigerant in System	Carbon Dioxide and Ethane Number	Size	Other Refrigerants Number	Size
Up to 1,000 pounds	1	1/2 inch	1	1/2 inch
1,000 to 1,800 pounds	1	1/2 inch	1	3/4 inch
1,800 to 3,000 pounds	1	1/2 inch	1	1 inch
3,000 to 5,000 pounds	1	1/2 inch	1	1 1/4 inches
5,000 to 7,500 pounds	1	3/4 inch	1	1 1/2 inches
7,500 to 13,500 pounds	1	1 inch	1	2 inches
13,500 to 27,000 pounds			2	2 inches



## NEWS!

### REFRIGERATION TUBES

#### in lengths up to 200 ft.

For the first time in the industry's history, Seamless Copper Refrigeration Tubes as large as one-half inch in diameter are available in lengths up to two hundred feet. Smaller tubes can be had in even longer lengths. For instance, the one-quarter inch tube illustrated is 425' long.

A newly developed process has made possible these long lengths, which materially reduce the risk of failure by minimizing splices. The longer lengths also reduce scrap losses, as the exact amount required can be cut without waste at the ends.

French De Luxe Copper Refrigeration Tubes are free from oxide and foreign matter. Each coil is completely dehydrated, sealed, rigidly tested and reaches you ready for use. For manufacturers who prefer to do their own dehydrating, the French Manufacturing Company produces copper tubes dried (commercially dehydrated), with either open or closed ends.

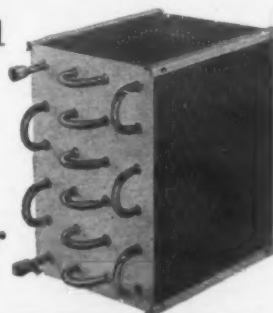
All French Copper Refrigeration Tubes possess the requisite properties for lasting, dependable service. Their grain structure is uniform. This important quality is in every coil because highest metallurgical skill, long manufacturing experience and only the best of raw material go into their production. Additional information will be furnished upon request.



THE FRENCH MANUFACTURING CO.  
General Offices: Waterbury, Connecticut

FRENCH REFRIGERATION TUBES

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HERE'S another LARKIN COIL—One of 95 standard models and sizes. Model G is developed for greatest efficiency in standard Grocery Boxes, 4' to 8' long; comes in 5 sizes. Deliveries on LARKIN, the original 100% Vertical-Surface Aluminum-Plate COILS, from warehouse stocks at Brooklyn, Chicago and Atlanta; special sizes from Atlanta.

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COPELAND : SERVEL : WILLIAMS ICE-O-MATIC : CARRIER - BRUNSWICK - KROES-CHILL : MAYFLOWER : UNIVERSAL : KULAIR : ZEROZONE : M & E : MODERN : STARR : MOHAWK : APEX : DICELER : LIBERTY : H. M. Robins Co., Export and Others.

LARKIN Refrigerating Corporation  
Originators and Manufacturers

ATLANTA, GA., U.S.A.

U.S. PATENT No. 1,774,235

100% VERTICAL SURFACE  
LARKIN COILS



## REFRIGERATION CODE IS ADOPTED IN OHIO

(Concluded from Page 16, Column 5)  
of the relief valve specified must be provided.

Sec. 21. Fusible plugs shall have a maximum fusing point of two hundred and eighty (280) degrees Fahrenheit. The free opening shall be one-sixteenth (1/16) inch in diameter for one hundred (100) pounds or less of refrigerant.

Sec. 22. No fire, flame, or arc light will be permitted in a Class "A", "B", or "C" machinery room in which a flammable refrigerant is used.

Sec. 23. No major electrical equipment except the motors and switchboards necessary to operate the machinery shall be permitted in a Class "A" or "B" machinery room using a flammable refrigerant. All starting equipment, including switches, automatic starters, and the like, shall be of the oil-immersed or totally enclosed type.

Sec. 24. All Class "A" and "B" systems using a flammable or irritant refrigerant shall have an emergency switch controlling all of the electrically operated refrigerating machinery or the remote control of such a switch so located outside of the machinery room that it can be quickly reached and operated in case of necessity.

Sec. 25. All refrigerant piping, tubing, fittings, and valves shall be of materials suitable for the refrigerant used and shall withstand the pressures shown in Section 34.

Sec. 26. All piping and tubing containing the refrigerant shall be supported by strong, durable, and fire-resisting material in such a manner as to prevent excessive vibration and strains at joints and connections and all refrigerant-containing parts, and refrigerators containing such parts must be so rigidly supported or secured that they cannot be disturbed without the aid of tools or undue force.

Sec. 27. No refrigerant line shall be located in any elevator, dumbwaiter, or other shaft containing a moving object or one that has openings to living quarters and/or main exit hallways.

Sec. 28. No connection shall be made with the public water supply which will impair the purity thereof. Water used for removing heat from a refrigeration system shall not thereafter be used for drinking purposes.

Sec. 29. The minimum strength of connecting pipes or tubing shall be as follows:

(a) Standard weight butt welded pipe may be used for test pressures not exceeding one hundred and fifty (150) pounds. Extra heavy butt welded pipe may be used for test pressures up to three hundred (300) pounds.

(b) Lap welded standard weight pipe or seamless tubing of the same size may be used for test pressures not exceeding three hundred (300) pounds. Extra heavy pipe or its equivalent in seamless tubing must be used for higher test pressures.

Sec. 30. All flanged fittings for Class "A" and "B" systems subject to working pressures in excess of one hundred (100) pounds shall be of the recessed gasket type.

Sec. 31. Stop or service valves shall be provided on systems where required to retain the refrigerant charge when parts are disconnected as follows:

Stop valves for Class "A" and "B" systems, in:

(a) Inlet and outlet pipes of each pressure imposing element.

(b) Inlet and outlet pipes of each liquid receiver.

(c) Each liquid, and suction branch header.

(d) Each inlet and outlet pipe of each evaporator.

Stop or service valves for Class "C" systems, in:

(a) Each inlet and outlet pipe of each pressure imposing element.

(b) Each outlet of each liquid receiver.

(c) Each inlet and outlet line connected with each evaporator (expansion coils excepted).

(d) Each inlet and outlet pipe of each flooded type evaporator which can be removed as a unit.

Sec. 32. Check valves shall be installed in the discharge pipes of each pressure imposing element of Class "A" and "B" systems, using an irritant or flammable refrigerant.

Sec. 33. Seamless copper tubing if suitable for the refrigerant may be used for lines containing such refrigerant in Class "C", "D", and "E" systems, subject to the following requirements:

(a) The minimum wall thickness shall be thirty-four thousandths (.034) inch.

(b) For outside diameters over five-eighths (5/8) inch the minimum wall thickness shall be increased in the ratio of the new diameter to five-eighths (5/8) inch.

(c) Refrigerant-containing tubes shall be enclosed in iron pipe or tubing. The enclosing conduit may be of flexible metal at bends or terminals if not exceeding six (6) feet in length and if supported rigidly.

(d) All valves and fittings, except service valves, and those at the evaporator, pressure imposing element, liquid receiver,

or shell type apparatus and every connection of tubing shall be arranged in or on a suitable metal box and shall be rigidly attached thereto or to the supports thereof. Every such box shall have an accessible door or removable cover.

(e) All stop valves shall be easily accessible and have permanently attached hand-wheels, levers, or some other device for easily operating them without other tools.

(f) A valve shall be located in the inlet end of each branch suction pipe and in the liquid and suction lines of each service outlet.

(g) Possible distribution of escaping refrigerant by the conduit system is to be prevented by sealing the space around the refrigerant containing lines at the upper end of each piece of enclosing conduit.

(h) All refrigerant line joints shall be accessible.

(i) Every opening from or into an enclosing conduit for refrigerant tubes shall be free from sharp edges which might injure the tubing.

Exceptions:  
No enclosing conduit shall be required for refrigerant lines:

(1) Between the pressure imposing element, condenser, or shell type apparatus and the nearest riser box if such lines are not over six (6) feet in length.

(2) In Class "D" and "E" systems confined to the space of a single tenant.

Sec. 34. After complete installation and before operations, every refrigerant containing part of every system that is assembled and piped in place except evaporators, pressure imposing elements, receivers, and condensers for Class "C", "D", and "E" systems that are factory tested, shall be tested and proved tight under the minimum pressures shown in Table II.

TABLE II  
MINIMUM TEST PRESSURE  
(Pounds per square inch)

Refrigerant	Symbol	High Pressure Side	Low Pressure Side	Flammable	Irritant
Carbon Dioxide	CO <sub>2</sub>	1,500	750	no	no
Ethane	C <sub>2</sub> H <sub>6</sub>	1,100	550	yes	no
Ammonia	NH <sub>3</sub>	900	450	*no	yes
Propane	C <sub>3</sub> H <sub>8</sub>	250	125	yes	no
Methyl Chloride	CH <sub>3</sub> Cl	175	125	yes	no
Sulphur Dioxide	SO <sub>2</sub>	135	100	no	yes
Isobutane	C <sub>4</sub> H <sub>10</sub>	125	100	yes	no
Butane	C <sub>4</sub> H <sub>10</sub>	100	50	yes	no
Ethyl Chloride	C <sub>2</sub> H <sub>5</sub> Cl	100	50	yes	no
Dichloromethane	CH <sub>2</sub> Cl <sub>2</sub>	15	15	no	no
Dichloroethylene	C <sub>2</sub> H <sub>2</sub> Cl <sub>2</sub>	15	15	*no	no
Trichloroethylene	C <sub>2</sub> HCl <sub>3</sub>	15	15	no	no

\*For the purposes of this code.

Sec. 35. For other refrigerants the minimum test pressure for the high pressure side shall be not less than the vapor pressure of the refrigerant at one hundred and fifty (150) degrees Fahrenheit and the test pressure for the low side should be not less than one-half (1/2) of this.

Sec. 36. Other refrigerants not specified in the table, Section 34, shall not be used in or operated in a refrigerating system until the adaptability of the refrigerant has been passed upon by the United States Bureau of Mines, the United States Bureau of Standards, the United States Bureau of Explosives or the Ohio State Board of Health.

Sec. 37. The installer of every Class "A", "B", and "C" system shall notify the Department of Industrial Relations not less than forty-eight (48) hours previously, the day and hour on which the final tests are to be applied. Tests of installations in new buildings shall be made before the piping and connections of the system are covered or made inaccessible.

Sec. 38. A dated declaration of such test, signed by the manufacturer or installer, shall be posted in the machinery room within ten (10) feet of the pressure imposing element. If an inspector is present at the tests, he shall also sign the declaration.

Sec. 39. Additions to or major changes in a refrigerating system shall be subjected to test in accordance with Sections 34 and 37.

Sec. 40. Where purchaser does the work of installing, adding to or changing a refrigerating system, test requirements in Section 34 and 37 must be met; the certificate shall be prepared and signed by the individual in charge of the test.

Sec. 41. The factor of safety in all cases shall be not less than three and one-third (3-1/3) times the test pressure provided in Table II, Section 34.

Sec. 42. Manufacturers supplying compressors, condensers, receivers, evaporators, or other pressure vessels of refrigerating systems for sale to others for assembly purpose where such complete systems are not sold under the manufacturer's name and/or trade name, shall test these parts to at least the pressures specified herein and shall stamp the test pressure, the name of the refrigerant for which they are built and their name on each major part.

Sec. 43. It shall be the duty of the person in charge of the premises wherein any refrigerating system is located to exercise due diligence to see that the refrigerating system is properly maintained and operated at all times.

Sec. 44. A gas helmet or mask suited to the refrigerant used shall be provided with every Class "A" and "B" system that operates above atmospheric pressure (carbon dioxide systems excepted).

Sec. 45. Every gas helmet or mask shall be of a type approved by the U. S. Bureau of Mines as suitable for the refrigerant used, shall be inspected annually and shall be kept in operative condition in a case or cabinet and shall be easily accessible from outside of the machinery room.

Sec. 46. All flammable or irritant refrigerant withdrawn from any system shall be discharged into a suitable absorbent or container.

Sec. 47. Containers shall not be connected to the system except during charging or withdrawing periods.

Sec. 48. In testing with air pressure supplied by the pressure imposing element the discharge temperature shall not exceed one hundred fifty (150) degrees Fahrenheit.

Sec. 49. Every owner of every Class "A", "B", and "C" system shall conspicuously post as near as practicable to the pressure imposing element of such system a card giving amount of refrigerant charge, operating directions, and precautions to be observed in case of a break-down or leak, including the following:

(1) Instructions for shutting down system in case of emergency.

(2) The name, address, and telephone number of every engineer and operator in charge.

(3) The name, address, and day and night telephone numbers of service.

(4) The location of the nearest fire alarm box.

(5) The name, address, and telephone number of the physician or hospital to be called in case of emergency.

Sec. 50. Every system shall have the name of the refrigerant used printed on or affixed in a permanent manner thereto as follows:

(1) Class "A" and "B" systems:

(a) The pressure imposing element or piping adjacent thereto.

(b) The liquid receiver.

(c) Refrigerant lines.

(d) Every shell type apparatus and evaporator not in a refrigerated space.

(e) On the door or adjacent thereto of every refrigerated space, cabinet, or box containing an evaporator except in industrial systems.

(2) Class "C" systems:

(a) The pressure imposing element, condenser, receiver, or any one of these when all are assembled as a unit.

(b) Refrigerant lines.

(c) On each evaporator and cabinet or box containing same.

(3) Class "D" and "E" systems:

(a) On machine name plate and cabinet or box.

Unit Systems

Sec. 51. Unit systems shall consist of Classes "D" and "E" only.

Sec. 52. Limitations as to use:

(a) No unit system containing an irritant, flammable, or harmful refrigerant shall be placed in wards, or private rooms of hospitals, sleeping quarters of asylums, cell blocks of prisons, or any place where people are confined or helpless.

(b) Unit systems containing not over three and one-half (3 1/2) pounds of refrigerant and sealed units containing not over six (6) pounds of refrigerant tested to two (2) times the pressure specified herein can be located anywhere except as provided in Section 52(a).

(c) When not otherwise prohibited by law only Class "E" systems may be placed in:

(1) Entrances and exits of public buildings.

(2) Lobbies and auditoriums of places of public assembly.

(3) Dance and assembly halls above the first floor.

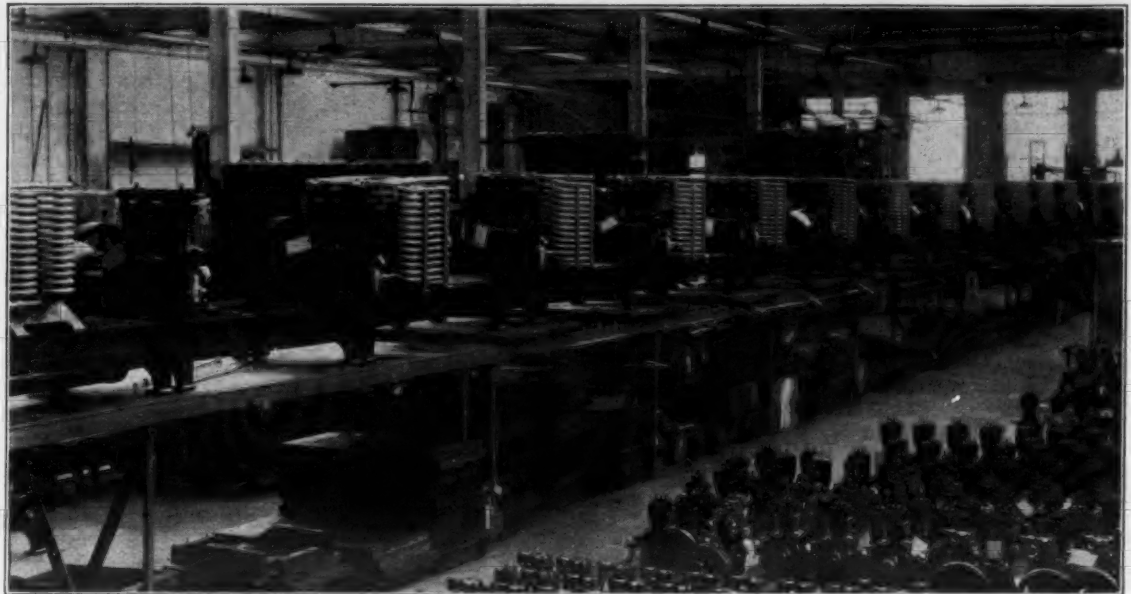
(4) Exits and entrances of buildings not classed as public buildings, having less than two thousand (2,000) cubic feet of volume per one (1) pound of refrigerant used.

(5) Underground waiting rooms.

(6) Subways.

(7) Diet kitchens of hospitals. Such kit-

## Activity at Universal Cooler



The picture shows a number of Universal Cooler Corp.'s 5-hp. commercial compressors passing along the production line. The company is now employing more workers than at any time in the history of the organization.

chens shall have tight-fitting self-closing doors and ventilation to the outside air by means of an easily opened window.

Sec. 53. A unit system so constructed that it will not burst due to the expansion of the refrigerant when subjected to an abnormal outside temperature, such as that generated by a fire, shall be protected by a pressure relief device as follows:

(a) Safety valves, if used, shall be one-quarter (1/4) inch in size.

(b) Rupture members, if used, shall have an opening at least one-sixteenth (1/16) inch in diameter.

(c) Fusible plugs, if used, shall have a maximum fusing point of two hundred and eighty (280) degrees Fahrenheit and a free opening of one-sixteenth (1/16) inch in diameter.

Sec. 54. All unit systems shall conform to the provisions of Sections 9, 25, and 34.

Sec. 55. Makers shall mark plainly thereon the following information:

(a) Maker's name.

(b) Kind of refrigerant used.

(c) Amount of refrigerant used to the nearest pound.

(d) The test pressure or pressures applied.

(NOTE: It shall be understood that the provisions of this code do not apply to refrigerating systems in buildings used exclusively as apartment houses, tenant houses, dwellings, and residences.)

## 'HERMETEX' CHOSEN AS NAME FOR FIBRE INSULATION

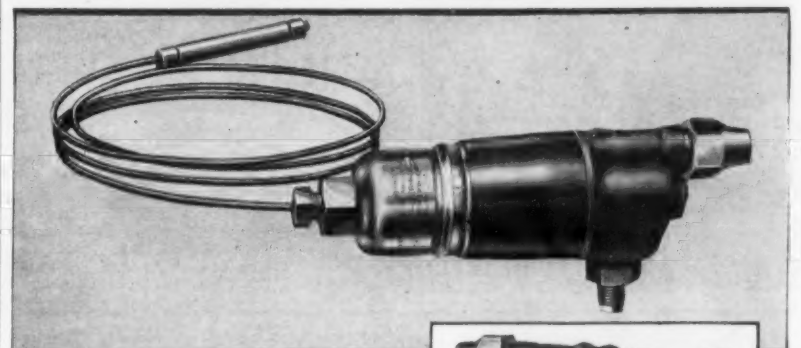
DETROIT—"Hermetex" is the name selected by Detroit Paper Products Corp. for the corrugated fibre insulation which it introduced recently. Application for copyright of the trade name has been made.

The company is making preparations to expand its insulation manufacturing operations, according to Seymour Franklin, president. At present, the company is maintaining a 24-hour, six-days-a-week production schedule, he states.

## WESTINGHOUSE MAKES COPE ASST. TO VICE PRESIDENT

EAST PITTSBURGH, Pa.—H. W. Cope, formerly assistant director of engineering, has been made assistant to the vice president of Westinghouse Electric & Mfg. Co., responsible for coordination of various headquarters engineering departments and district office engineers, according to Dr. S. M. Kintner, vice president of engineering.

## "GENUINE DETROIT" No. 673 THERMOSTATIC EXPANSION VALVE



YOU PAY FOR  
"GENUINE DETROIT"  
CONTROLS

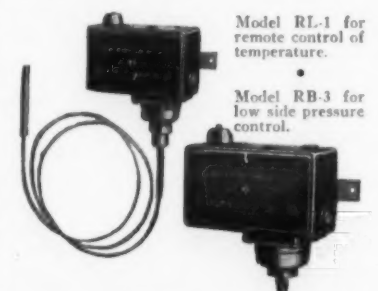
why not have them!

No refrigerating unit can operate better than its controls! You pay for poor controls in inefficient operation, service calls and customer dissatisfaction. Eliminate this expense with "Genuine Detroit" Controls!

RL-1 for remote temperature control  
—RB-3 for low side pressure control  
—RIBA for low side pressure control with high side cutout—RIBL for remote control of temperature and high side cutout. Write for Bulletins A-60, A-51, A-40B.

No. 673 Thermostatic Expansion Valve is a sensitive, moist-proof control which keeps the coil full of refrigerant without frost-back. No. 672 Automatic Expansion Valves are compact, easily adjusted and have only one moving part.

No. 250 "Genuine Detroit" Refrigeration Control Switches for commercial work are accurate, dependable, easy to install and adjust. Model



Model RL-1 for remote control of temperature.

Model RB-3 for low side pressure control.

## DETROIT LUBRICATOR COMPANY

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Lubricators • Carburetors • Valves • Automatic Controls for temperature, pressure, humidity. • Refrigeration, Oil Burner and Heating Accessories

• YOUR UNIT DESERVES "GENUINE DETROIT" CONTROLS •

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(R & H Methyl Chloride)  
The IDEAL Refrigerant

- Small volume displacement per unit of refrigeration.
- Non-corrosive to ordinary equipment, even if moisture is present.

Meets all Demands of  
Modern Household  
And Commercial Units

- Very stable at operating temperatures.
- Easily handled and serviced.

Write for further information and prices.

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Solicitor of Patents - Refrigeration Engineer  
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## PATENTS

ISSUED APRIL 18, 1933

1,903,777. AIR REFRIGERATING DE-  
VICE. George William Coin, Manhattan,  
Kan. Filed May 12, 1932. Serial No.  
610,944. 2 Claims. (Cl. 267-202.)

2. An air refrigerating device of the  
class described comprising a casing in-  
cluding four insulated walls, a tube inside  
the walls and spaced inwardly therefrom,  
said tube being formed with outwardly  
flared ends fixed to the ends of the walls,  
a plurality of horizontal and vertical parti-  
tions in one of the flared ends, a plurality  
of baffles in the tube.

1,903,825. REFRIGERATING APPARA-  
TUS. Edward B. Mallory, Tenafly, N. J.,  
assignor to The Climax Engineering Co.,  
Clinton, Iowa, a Corporation of Delaware.  
Filed Feb. 14, 1930. Serial No. 428,324. 10  
Claims. (Cl. 62-115.)

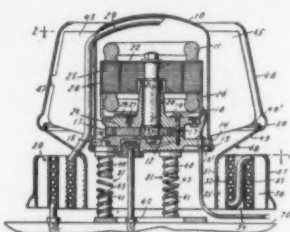
1. In refrigerating apparatus of the  
character described the combination of a  
compressor, a casing enclosing said com-  
pressor, and means for bringing into heat  
exchanging relation with said casing near  
the base thereof a convection current of  
air at a temperature above atmospheric  
temperature but below the temperature of  
said casing, whereby heat is removed from  
said casing by heat current of air, said  
means comprising solely a condenser lo-  
cated below said casing and communicat-  
ing therewith and acting to induce said  
air current by convection.

1,903,826. REFRIGERATING APPARA-  
TUS. Edward B. Mallory, Tenafly, N. J.,  
assignor to The Climax Engineering Co.,  
Clinton, Iowa, a Corporation of Delaware.  
Filed Feb. 14, 1930. Serial No. 428,325. 15  
Claims. (Cl. 62-115.)

1. A refrigerating unit of the character  
described having in combination a casing,  
a compressor in said casing, and means  
supporting said casing in spaced relation  
above a supporting surface, a condenser  
coil occupying space below said casing  
and being constructed and arranged to  
be cooled by convection air currents, and  
an air deflector above said condenser  
constructed and arranged to deflect air  
rising from said condenser outwardly  
away from said casing.

1,903,827. REFRIGERATING APPARA-  
TUS. Edward B. Mallory, Tenafly, N. J.,  
assignor to The Climax Engineering Co.,  
Clinton, Iowa, a Corporation of Delaware.  
Filed Feb. 14, 1930. Serial No. 428,326. 27  
Claims. (Cl. 62-115.)

1. A refrigerating apparatus of the char-  
acter described comprising a motor and  
compressor in a sealed casing having cool-



1,903,827

ing fins on said casing and a shroud en-  
closing said cooling fins and a condenser  
mounted on the exterior of said shroud.

1,903,848. REFRIGERATING MECHAN-  
ISM. August J. Asmussen, Detroit, Mich.,  
assignor, by mesne assignments, to Kel-  
vinator Corp., Detroit, Mich., a Corpora-

tion of Michigan. Filed June 6, 1928.  
Serial No. 283,194. 8 Claims. (Cl. 62-126.)

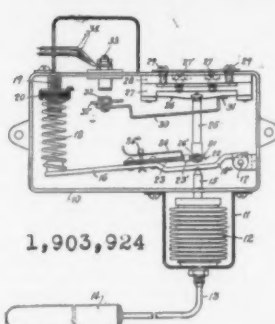
1. An expansion element for refrigerat-  
ing mechanisms comprising a pair of wall  
members lying in substantially contacting  
relationship over the greater part of their  
area when the contacting surfaces are sub-  
jected to atmospheric pressure, said mem-  
bers being sealed against leakage between  
their edges, said walls being sufficiently  
flexible to separate a slight amount when  
said contacting surfaces are subjected to a  
pressure greater than atmospheric pres-  
sure, and means for introducing refrigerant  
to and removing it from between said  
contacting surfaces.

1,903,853. COMPRESSOR CONTROL.  
Alonzo W. Ruff, York, Pa., assignor to  
York Ice Machinery Corp., York, Pa., a  
Corporation of Delaware. Filed Aug. 9,  
1929. Serial No. 384,639. 12 Claims. (Cl.  
230-22.)

1. A suction pressure control device for  
a compressor, comprising in combination  
with such compressor, means for partially  
unloading said compressor; and means re-  
sponsive to suction pressure and serving  
upon abnormal reduction thereof to render  
said unloading means effective.

1,903,924. AUTOMATIC CONTROL  
SWITCH. Lawrence C. Irwin, Brooklyn,  
N. Y., assignor to Charles J. Tagliabue  
Mfg. Co., Brooklyn, N. Y., a Corporation  
of New York. Filed March 6, 1930. Serial  
No. 433,576. 23 Claims. (Cl. 200-140.)

1. In an automatic control switch for  
controlling an electric circuit in response  
to variations in the temperature or pres-  
sure at a selected point, in combination,



1,903,924

an element adapted to expand in response  
to an increase in the temperature or pres-  
sure at such point and to contract in re-  
sponse to a decrease in such temperature  
or pressure, a snap plate having a con-  
cave section adapted to snap rapidly to a  
reverse concave position when moved for a  
distance from a position of rest, a resilient  
connection between said element and plate  
arranged to absorb a part of the move-  
ment of said element and become ten-  
sioned thereby, and a switch arm operated  
by said plate to make or break quickly an  
electric circuit as said plate snaps into  
reverse position aided by the stored-up  
energy of said resilient connection.

1,903,934. REFRIGERATION. Carl Georg  
Munters, Stockholm, Sweden, assignor to  
Electrolux Servel Corp., New York, N. Y.,  
a Corporation of Delaware. Filed March  
29, 1929. Serial No. 350,845, and in Ger-  
many May 25, 1928. 4 Claims. (Cl. 62-95.)

1. In a refrigerator, a cabinet, a hori-  
zontally disposed evaporator shell in said  
cabinet, air cooling means on the rear part  
of said shell, ice freezing means on the  
front part of said shell, means for intro-  
ducing an inert gas into the rear part of  
said shell, a plurality of vertically spaced  
horizontally disposed liquid distributing  
plates within said shell, a transverse rib  
on the central part of the uppermost of  
said plates, a conduit for conveying liquid  
refrigerant to said shell, said conduit  
entering the rear part of said shell and  
extending forward of said transverse rib  
and means for removing refrigerant and  
inert gas from the rear of said shell.

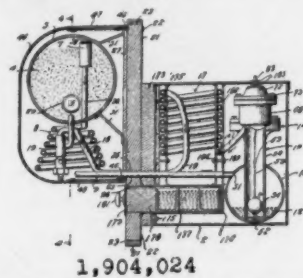
1,903,951. TEMPERATURE CONTROL  
CHAMBER. Edward T. Williams, Pelham  
Manor, N. Y. Filed May 7, 1930. Serial  
No. 450,338. 8 Claims. (Cl. 62-3.)

1. In combination with a compression  
type refrigerator including an evaporator,  
means forming a control chamber in the  
suction line separate from the evaporator,  
means for supplying liquid to said cham-  
ber from the pressure line, a float for con-  
trolling the quantity of liquid in said  
chamber, a thermostat in said chamber be-  
low the normal liquid level, and a switch  
operated by the thermostat for controlling  
the operation of the refrigerator.

1,904,024. REFRIGERATION APPARA-  
TUS. Leonard Kay Wright, Jackson  
Heights, N. Y., assignor to Freezidor Syn-  
dicate, New York, N. Y. Filed Nov. 5,  
1927. Serial No. 231,357. 13 Claims. (Cl.  
62-118.)

1. A refrigerating apparatus for installa-  
tion in an icebox comprising a panel  
adapted to be substituted for a door of the  
ice compartment, on the exterior of the

panel and adsorber-generator, a condenser  
connected to the adsorber-generator, on  
the interior of the panel a refrigerant  
storage tank connected with the condenser,  
an evaporator, means to convey a fluid



1,904,024

from the storage tank to the evaporator,  
and means to convey a fluid from the  
evaporator to the adsorber-generator.

7. In a refrigerating apparatus operat-  
ing on the adsorption principle, a casing  
in which are mounted a generator and a  
condenser and an opening at the base of  
the casing and another opening at the top  
for circulation of air therethrough.

1,904,468. METHOD AND APPARATUS  
FOR CONDITIONING AIR. Alfred D.  
Karr, Newark, N. J., and Karl D. Perkins,  
New York, N. Y., assignors to Audiffren  
Refrigerating Machine Co., New York, N.  
Y., a Corporation of New Jersey. Filed  
April 7, 1931. Serial No. 528,340. 8 Claims.  
(Cl. 62-176.)

6. In an air conditioning system, in com-  
bination with an enclosure in which con-  
ditioned air is used, a cooler chamber,  
means for passing air to be supplied to  
the enclosure in a single stream through  
said chamber, a plurality of cooled sur-  
faces extending across the cross section  
of said cooler chamber in the path of said  
air stream, means for selectively cooling  
said surfaces to a temperature below the  
dew-point of the air entering said cham-  
ber whereby a quantity of moisture is  
condensed from the air, and means for  
selectively reducing the total cooled sur-  
face area exposed to said air-stream while  
maintaining a sufficient temperature differ-  
ence between the cooled surfaces and the  
entering air stream to condense a sub-  
stantially unchanged quantity of moisture  
from the air in said stream, whereby the  
amount of sensible heat abstracted from  
the air stream may be reduced while the  
amount of heat abstracted from the air  
stream as latent heat of condensation is  
maintained substantially unchanged.

1,904,512. METHOD AND APPARATUS  
FOR PREPARING SULPHUR DIOXIDE.  
Birger W. Nordlander, Schenectady, N. Y.,  
assignor to General Electric Co., a Corpo-  
ration of New York. Filed June 22, 1929.  
Serial No. 372,868. 3 Claims. (Cl. 23-179.)

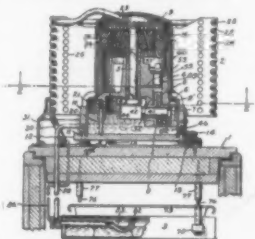
1. The process of preparing sulphur di-  
oxide substantially free from sulphur tri-  
oxide, which comprises reacting oxygen  
gas within an excess of liquid sulphur in  
an enclosed space by passing said gas  
through the liquid sulphur at a rate such  
that substantially no free oxygen emerges  
therefrom.

1,904,513. APPARATUS FOR PREPAR-  
ING SULPHUR DIOXIDE. Birger W.  
Nordlander, Schenectady, N. Y., assignor  
to General Electric Co., a Corporation of  
New York. Original application filed June  
22, 1929. Serial No. 372,868. Divided and  
this application filed March 13, 1931. Ser-  
ial No. 522,477. 1 Claim. (Cl. 23-278.)

In an apparatus for preparing sulphur  
dioxide substantially free from sulphur  
trioxide, a reaction chamber, means for  
feeding liquid sulphur to the reaction  
chamber, means for discharging gas into  
the liquid sulphur in the form of fine  
bubbles, said means consisting of a porous  
element of resistant material.

1,904,559. REFRIGERATING MACHINE.  
Christian Steenstrup, Schenectady, N. Y.,  
assignor to General Electric Co., a Corpo-  
ration of New York. Filed May 18, 1926.  
Serial No. 109,960. Renewed Feb. 6, 1931.  
18 Claims. (Cl. 62-115.)

1. A refrigerating machine comprising a  
casing, a compressor therein, a condenser  
coil surrounding the casing and connected



1,904,559

with the compressor, and a series of heat  
radiating fins on the casing for support-  
ing the condenser coil.

14. A refrigerating machine having a  
plate evaporator comprising a casing hav-  
ing partitions therein forming separate  
chambers containing refrigerant and heat  
storage liquid, and a cover having a  
braided connection with the walls of the  
casing and with the partitions.

1,904,560. REFRIGERATOR EVAPORA-  
TOR. Christian Steenstrup, Schenectady,

N. Y., assignor to General Electric Co., a  
Corporation of New York. Filed Aug. 28,  
1929. Serial No. 389,049. Renewed Aug. 31,  
1932. 12 Claims. (Cl. 62-95.)

1. An evaporator for refrigerating ma-  
chines including a top plate for support-  
ing articles to be frozen, another plate  
joined to said top plate to form a refrigerant  
chamber, said top plate having a  
recess therein to constitute a header for  
the refrigerant chamber, and a baffle ex-  
tending between said plates from said  
header adjacent the opposite edge thereof.

1,904,561. REFRIGERATING MACHINE.  
Christian Steenstrup, Schenectady, N. Y.,  
assignor to General Electric Co., a Corpo-  
ration of New York. Filed June 10, 1931.  
Serial No. 543,406. 11 Claims. (Cl. 62-115.)

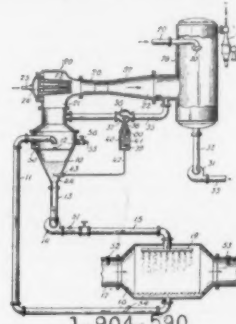
1. A refrigerating machine including a  
compressor and an enclosing compression  
casing, said casing containing a body of  
lubricant to provide for lubricating the  
compressor, and means conductively iso-  
lated from the portion of said casing con-  
taining the body of lubricant for support-  
ing said casing.

1,904,570. APPARATUS FOR THE VEN-  
TILATION OF COOLING PLANTS.  
Arthur Lindsay Thomson, Milan, Italy,  
assignor to Altek Compagnie d'Etude et  
d'Exploitation d'Appareils Frigorifiques  
pour le Transport, Antwerp, Belgium, a  
Belgium Company. Filed March 15, 1929.  
Serial No. 347,259, and in Belgium Nov. 3,  
1928. 5 Claims. (Cl. 62-129.)

1. In a cooling plant, the combination  
of a cold storage room, a compartment in  
said room, refrigerating pipes in said com-  
partment, an air supply conduit adjacent  
said compartment, a series of passageways  
between said conduit and said compart-  
ment, a series of passageways between  
said compartment and said room, means  
for controlling the passageways of one of  
said series, and means for blowing air  
into said supply pipe at a controllable  
rate.

1,904,590. REFRIGERATION. Meyer  
Wexler, Carteret, N. J., assignor to Foster  
Wheeler Corp., New York, N. Y., a Corpo-  
ration of New York. Filed March 7, 1932.  
Serial No. 597,161. 21 Claims. (Cl. 62-152.)

1. The method of refrigeration which  
comprises introducing liquid into a closed  
vessel, withdrawing vaporous fluid from



1,904,590

said vessel to maintain a vacuum therein,  
and reintroducing a portion of said vaporous  
fluid into said vessel to regulate the  
degree of vacuum maintained therein.

(Continued on Page 19, Column 4)



# ANSUL

## SULPHUR DIOXIDE

The scientific system of  
dehydrating Ansul Sulphur Dioxide  
assures a product of minimum mois-  
ture content. Then, each cylinder is  
given a laboratory analysis before it  
leaves the plant. That is why Ansul  
Sulphur Dioxide gives absolute pro-  
tection for refrigeration.

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**Fulco Adjustable**  
REFRIGERATOR  
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old styles! Easy to  
adjust—more conven-  
ient! Made of strong,  
durable green drill—  
sanitary lining and  
non-lump filler. Write  
for prices today!

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WITH infinite faith in the future of our Country  
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**50 SHARES (COMMON)**  
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FORMERLY  
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Wedge-locked and edge-locked aluminum fins on tinned copper tubing for methyl chloride, sulphur dioxide, F-12, etc.—aluminum tubing for ammonia. Absolute Metal to Metal Contact.

A Superior Coil in which Soldered Return Bends have been eliminated.

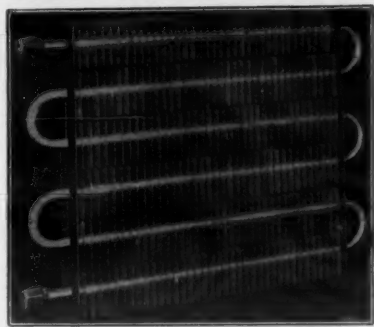
Priced to meet 1933 conditions.  
Write—Wire for Catalog.

PEERLESS ICE MACHINE CO., 515 W. 35th St., Chicago, Ill.

## "REMPE" SUPER COLD FIN COILS

for  
Methyl Chloride,  
Ammonia, F-12 and  
Sulphur Dioxide

REMPE "FIN COIL" CO.  
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We carry a complete stock of  
EVERYTHING IN REFRIGERATION  
including

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Thermostatic Expansion Valves, Tubing,  
Manifolds, Fittings, Controls, etc.

Save money, time and work—Buy everything from  
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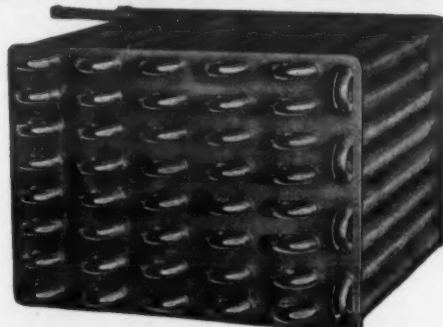
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With Smallest Number  
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Rome, N. Y.

Makers of Rome Condensers and  
Helical Finned Tubing



SELF-LIFTING PIANO TRUCK CO.  
Manufacturers of Trucks for 33 Years

## For Every Job

of handling refrigerators.

**X-70 REFRIGERATOR TRUCKS**  
fit all cabinets, with or without legs, or in the crate, eliminate one man on delivery and prevent damage to cabinet, floor or walls. Sturdy all-steel frame, 4" rubber tired wheels, one truck with top casters and handles for tilting and rolling into delivery truck and on stairs. Only pads touch cabinet. Complete set \$34.50. Ball bearing swivel casters on one end \$5 extra.

We also manufacture the new Balance Truck.  
FINDLAY, OHIO



## Dayton V-Belts

For all makes and types of refrigerators. There is a stock near you. Ask for price list and name of your nearest distributor.

THE DAYTON RUBBER MFG. CO.  
Dayton, Ohio  
The World's Largest Manufacturer of V-Belts

Brunner Commercial Refrigeration plus  
an exclusive sales plan spells success.  
Write for full information.

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# BRUNNER

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550 Macabess Bldg., Detroit, Mich. 1933

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☐ Please enter my order for COMBINATION OFFER NO. .... at \$.....  
☐ Enter subscription to Electric Refrigeration News ☐ 1 Year \$3.00. ☐ 2 years \$5.00.  
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☐ Send Refrigeration Directory and Market Data Book including Supplement. \$1.00 per copy.

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## QUESTIONS

### Oil Burning Refrigerator

No. 1181—(Dealer, Connecticut)—"I have an inquiry for an oil burning refrigerator for use in a rural district. I am told that such a refrigerator is made in Cleveland, Ohio. Can you advise me who is the manufacturer and what his address is?"

Answer—Perfection Stove Co., 7609 Platt Ave., Cleveland, Ohio.

### Book on Thermo-Couples

No. 1182—(Manufacturer, Indiana)—"For some time we have been endeavoring to find a book which would give rather complete information, both elementary and advanced regarding the proper use of thermo-couples, construction and application. We were advised by the Department of Commerce that probably the best work on this subject was 'Heat for Advanced Students' by Edwin Edser. Can you furnish us with the name of the publisher?"

Answer—The Macmillan Co., 60 Fifth Ave., New York City.

### Champion Repair Parts

No. 1183—(Manufacturer's branch, Florida)—"Some four years ago a concern on Diversey Blvd., Chicago, took over the refrigeration business of the Champion Shoe Machinery Co. of St. Louis. We have just wired them for information on parts but Postal Telegraph reports them as unknown. Can you put us in touch with them or have they discontinued the manufacture of Champion Electro Icer parts?"

Answer—Chicago Refrigeration Service Co., 360 E. Grand Ave., Chicago, Ill., maintains a stock of replacement parts for the Champion refrigerator.

### Refrigeration Statistics

No. 1184—(Wisconsin)—"Have you any previous issues of your ELECTRIC REFRIGERATION NEWS or any data showing the volume of sales of competitive makes of household electric refrigerators for 1932?"

Answer—We have no data on individual production of the various manufacturers of electric refrigerators. Member companies of the Refrigeration Division of the National Electrical Manufacturers Association report their figures to association headquarters, and the totals of these companies are published in ELECTRIC REFRIGERATION NEWS, as released.

### Artificial Foods

No. 1185—(Distributor, Iowa)—"Will you kindly furnish us with the names of manufacturers building imitation foods for refrigerator displays?"

Answer—Artificial Food Co., 1675 W. 11th St., Los Angeles, Calif.; Imitation Food Products Co., 107 Lawrence St., Brooklyn, N. Y.; Realistic Displays, Inc., 122 Coit St., Irvington, N. J.; and Reproductions Co., 210 South St., Boston, Mass.

### Refrigerants

No. 1186—(Distributor, Connecticut)—"Can you give me the chemical formulae for Carrene, F-12, and the new gas used in the Frigidaire? Is there any difference between methyl chloride—CH<sub>3</sub>Cl—and the methyl chloride which has been used for years in refrigeration?"

Answer—Chemical formula for Carrene (methylene dichloride) is CH<sub>2</sub>Cl<sub>2</sub>; for F-12 (dichlorodifluoromethane) is CCl<sub>2</sub>F<sub>2</sub>; and for F-114 (Frigidaire's new refrigerant known as dichlorotetrafluoroethane) is C<sub>2</sub>Cl<sub>2</sub>F<sub>4</sub>. Methyl chloride is CH<sub>3</sub>Cl.

### Beer Pumps and Spigots

No. 1187—(Wood works, Louisiana)—"Can you supply us with the names of manufacturers of beer pumps and draft arm spigots?"

Answer—Beer pumps are manufactured by Brunner Mfg. Co., Utica, N. Y.; Curtis Pneumatic Machinery Co., 1912 Kienlen Ave., St. Louis, Mo.; and Dayton Pump & Mfg. Co., 500 Webster St., Dayton, Ohio. Draft arm spigots are made by Kason Hardware Corp., 61-67 Navy St., Brooklyn, N. Y.; Industrial Refrigeration Co., Bethlehem, Pa.; and Universal Bottle Washer Co., 3625 Superior St., Detroit, Mich.

## CENTURY INTRODUCES LINE OF SPLASH-PROOF MOTORS

ST. LOUIS—Century Electric Co. here is introducing a new line of splash-proof motors ranging in capacity from 1 to 30 hp.

While intended primarily for the usual type of splash-proof installation, the manufacturer is recommending the line for outdoor installations where protective buildings or covers are not available.

Frame and end brackets of the new motor are of refined grey iron castings. One-way ventilation is provided by intake and outlet openings in the lower section of the end brackets.

The bearing bracket is fitted to the frame by long contact sealed fit.

## PATENTS

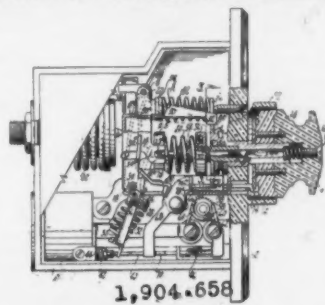
(Continued from Page 18, Column 5)

1,904,597. REFRIGERATING APPARATUS. Edmund E. Allyn, Lantana, Fla. Filed March 6, 1931. Serial No. 520,536. 10 Claims. (Cl. 62-95.)

1. Refrigerating apparatus, comprising a cabinet having a refrigerating compartment, an evaporator member therein having parallel conduit members in substantially the same horizontal plane, tray supporting means carried by said conduit members and comprising a sheet metal casing having parallel vertical side walls provided with tray supporting means and at their upper portions with laterally extending members removably resting upon and in thermal contact with said conduit members, whereby said casing is adapted both to support a tray and to conduct heat to said conduit members.

1,904,658. DEFROSTER. Malcolm E. Henning, Des Moines, Iowa, assignor to Penn Electric Switch Co., Des Moines, Iowa. Filed Oct. 27, 1932. Serial No. 639,808. 15 Claims. (Cl. 62-4.)

1. A control mechanism for refrigerators comprising means for starting and stopping operation of the refrigerator to obtain normal cycles of operation, means for securing temporary modification of the normal cycles of operation of the refrigerator with the temperature limits between starting and stopping remaining the same, means for obtaining non-normal cycles of operation of the refrigerator with the temperature limits between starting and stopping being changed and common means manually settable for securing either said temporary modification of the normal cycles of operation or said non-normal cycles of operation.



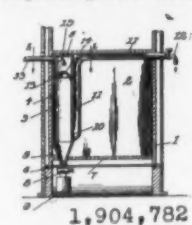
mal cycles of operation, means for securing temporary modification of the normal cycles of operation of the refrigerator with the temperature limits between starting and stopping remaining the same, means for obtaining non-normal cycles of operation of the refrigerator with the temperature limits between starting and stopping being changed and common means manually settable for securing either said temporary modification of the normal cycles of operation or said non-normal cycles of operation.

1,904,686. COOLING SYSTEM. Hoxie H. Humphreys, Phoenix, Ariz. Filed March 19, 1933. Serial No. 262,803. 10 Claims. (Cl. 62-39.)

1. A multi-stage refrigerating system comprising the combination with an intake conduit, of a cooling conduit substantially surrounding the intake conduit, and spaced therefrom, a porous absorbent wrapping for the intake conduit, liquid spraying means between the conduits, means in each conduit for circulating air therethrough in counter-currents, means for continuing the intake conduit unbrokenly into each succeeding unit of the system, and means for circulating the refrigerating fluid in a continuous closed cycle through each unit.

1,904,782. REFRIGERATOR WATER COOLER. Samuel H. Flannagan, Richmond, Va. Filed Dec. 29, 1931. Serial No. 583,761. 5 Claims. (Cl. 62-41.)

1. In combination with a household type refrigerator, a combined water storage and cooling receptacle placed within the main



food compartment so as to interfere to a minimum with its normal use, comprising a tall, narrow, closed vertical tank constructed of good heat conductive material and having an inwardly sloping bottom pitched to substantially prevent the accumulation of sediment thereon, a sediment receptacle directly below the lowermost part of the tank, and a water outlet permitting the intermittent withdrawal of cooled water as desired, said tank permitting the cooling and quiescence of the water so as to precipitate out solids.

1,904,817. REFRIGERATING PLANT. Raoul Bernat and Henri Bernat, Bordeaux, France. Filed July 9, 1931. Serial No. 549,746, and in France July 16, 1930. 4 Claims. (Cl. 62-126.)

1. A refrigerating apparatus comprising an upper receptacle, a lower receptacle, refrigerating tubes extending between said receptacles and connecting the same, means for leading a refrigerating liquid from the lower receptacle to the upper receptacle, an exit conduit leading from the upper portion of the upper receptacle and another conduit leading from the lower part of said receptacle to said exit conduit.

1,904,980. REFRIGERATING APPARATUS. Harry B. Hull, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed April 30, 1929. Serial No. 359,395. 8 Claims. (Cl. 62-141.)

1. A beverage cooling and dispensing apparatus comprising an insulated beverage chamber, a removable beverage container supported in an inverted position above said chamber and having its opening projecting into said chamber, mechanical cooling means about said container and mechanical cooling means in said chamber.

### SOUTH BEND GRUNOW DEALER APPOINTED

SOUTH BEND, Ind.—Colip Bros., dealer in household appliances and electrical contractor, has taken on the Grunow electric refrigerator line.

## CLASSIFIED

PAYMENT in advance is required for advertising in this column.

RATES: 50 words or less, 1 time, \$2.00, extra words 4 cents each. Three times, \$5.00, extra words 10 cents each.

### EQUIPMENT FOR SALE

FOR SALE: 115 refrigerator cabinets porcelain lined, new and in original crates, width twenty four inches, depth twenty-two inches, height thirty-one inches, suitable for multiple apartment job or under the sink. Kitchenette model. Price eight dollars each f. o. b. New York. Box 569.

FOR SALE: 150 high grade reciprocating compressors for SO<sub>2</sub> or methyl chloride, bore 1 1/4", stroke 1 1/4", price \$8.00 each with discount for entire lot. Frantz-Carroll Systems, Hanna Building, Cleveland, Ohio.

### INDEPENDENT SERVICE COMPANIES

MANUFACTURERS are constantly inquiring for reliable local service organizations prepared to handle installation and maintenance work in communities not served by their regular distributors and dealers. For only \$10.00 you may carry a 4-line advertisement for three months. Ask for details. Address Electric Refrigeration News.

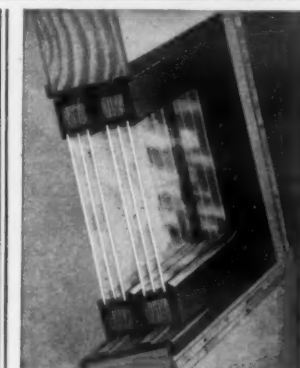
### 1000 WANTED 1000 Electric Refrigerators

used or new  
Phone or wire complete details  
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Philadelphia, Pa.

### Trained Men Available

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prevents warping and swelling.

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New York, N. Y. Akron, Ohio  
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Commercial Evaporators

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McCord Ice Trays

Spiral Finned Tubing

Spiral Copper Finned Iron,

Steel or Copper Pipe

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DETROIT - MICH.